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MASTER'S THESIS

Strategic Analysis of Electronic Arts™

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Declaration of Authorship

The author hereby declares that he compiled this thesis independently; using only the listed resources and literature, and the thesis has not been used to obtain a different or the same degree.

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In Prague. May 10, 2018

Signature

Abstract

The present thesis focuses on and provides a case study of a merger and acquisitions of an interactive software industry. The author analyzes a comprehensive managerial and financial metrics. The thesis includes a thorough historical, industrial, managerial, statement, crisis management and volatility analysis with a benchmark comparison. The focus of this thesis is stability in the long run. The thesis should contribute to M&A literature, coming in favor of such actions taken by corporations.

JEL Classification M1, M14, G34

Keywords Strategic Management, Financial Management, Mergers and Acquisitions.

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Acronyms

EA™	Electronic Arts
CPM	Competitive Profile Matrix
GARCH	Generalized Autoregressive Conditional Heteroscedastic
ARCH	Autoregressive Conditional Heteroscedastic
ARIMA	Autoregressive Integrated Moving Average
VAR	Vector Auto regression
EFE	External Factor Evaluation
IFE	Internal Factor Evaluation
M&A	Merger and Acquisition

Master's Thesis Proposal

Thesis Topic

Strategic Analysis of Electronic Arts

Motivation:

This document is prepared for the purposes of strategic management, financial analysis, performance measurement, brand strategy, company valuation, and crisis management. Concerning the various indicators of entertainment industry.

Electronic arts is a company operating in interactive entertainment software niche of entertainment industry. The company has several business units to meet various demands of its customers. The company has been experiencing alteration in administration, organizational structure, operating and controlling mechanisms. The changes and how did the company evolve over time will make an interesting case study. EA is the world's leading companies in interactive software development with successful emergence from the famous IT bubbles in late 1990's and early 2000's.

Forecasting and analyzing company performance in entertainment industry is very difficult and requires complex analysis of various indicators such as industry financial models, business cycles, elasticity of demand etc. This new niche in entertainment industry emerges with advancements in IT. One could easily lead to a conclusion that companies such as EA and others were the pioneers in this niche within the entertainment industry.

The circumstance in this particular industry has led to creation of a unique opportunity to utilize M&A as a means of core business practice. This stands in contrast to the widely accepted practice. The author would analyze this anomaly to test the following hypotheses.

Hypotheses:

1. The company has shown extreme flexibility in response to industry fluctuations and business cycle.
2. The company has adopted the right business model for its particular industry.
3. The company has focused more on acquisition rather than internal, intrinsic value generation. This focus has not been harmful to the longevity of the company.
4. The company is more focused on short term profit rather than long term sustainability.
5. M&As did not impact the company in 2009 economic recession.

Methodology:

1. I intend to gather data about industry fluctuations and business cycles within the industry. The important part of this analysis is the demand elasticity and relevant markets (Vogel 2001). This will aid in understanding the firm and its competitors.
2. The study will begin with an analysis of the formal company structure, its vision and mission statements. This analysis will be in line with the strategic and corporate views of David (2009). Afterwards I will look closer to the strategies being used by the company and will perform both internal and external audit. This will then be quantified using several matrices (EFE, CPM, and IE). I will then turn my attention to long term strategies, strategic initiatives. I will then generate strategies and compare to the company's generated strategies and how efficient the company is in its organizational structure.
3. The second phase of the study will focus on strategy implementation, and how strategy is used across various functions of the company. I intend to use discounted cash flow model and enterprise valuation methods to measure the company's wellbeing to quantify my analysis of strategy implementation. (Robert, Reilly 2000 and Koller 2005).
4. Another section here will be dedicated to risk and crisis management. How well does the company measure risk and what are the policy implications. I intend to create two subsamples of cash flow analysis, the expansion phase (1999-2007) and the recovery phase (2009-2015). In an effort to uncover the company's crisis management, by using the projection of cash flows into the future I will create an artificial prediction of 2009-2015 and compared the two. In addition, I will make a forecast for upcoming years (i.e. 2016 onwards).

Expected Contribution:

The expected contribution is to M&A literature with evidence that it can be used for core strategy of a company. M&A does not affect the company's main value generation and it does not threat the long term sustainability of the company. Furthermore, the author will provide findings that M&A on large scale does not create volatility and the company behaves with in accepted, stable conditions.

Outline:

1. Motivation is based on data collection and industry analysis to gain a better perspective of company's current managerial style, organizational matrix, financial accounting, and use of company valuation.
2. Study of Electronic Arts: I will use the strategic management frame work and financial accounting to uncover company's various financial and market variables.
3. Data: The major source of my data will be EA's financial statements (1999-2015) and stock price published by NASDAQ.
4. The second major sources of data will be Bloomberg business reviews and Journal Economic and Management Strategy.
5. Methods: I will use the strategy formulation, implementation, and evaluation in detail. Including all the matrices and balanced scorecard approach.
6. Result: I will generate alternative strategies based on my analysis for internal and external audits.
7. Conclusion: I will summarize my findings company's strategic positioning and their performance management in my study and give recommendation for future development.

Core Bibliography:

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Author

Supervisor

1 Introduction

1.1 Motivation for the Work

The author was motivated to investigate the structure and the impact of mergers and acquisitions on large corporations. The concept of mergers and acquisitions (M&A) has met with some mixed reactions amongst those who study it. The author will address a wide range of topics in this thesis but the main question is about mergers and acquisitions. Historically, the company in question has been and continues to be involved in a very aggressive market strategy of acquisitions. The company has prospered despite having acquired many companies. Is M&A the main driver of success? Or is it the managerial strategy which directs the company effort that brings EA its success?

In this thesis the author will present the case of a company with a long history of mergers and acquisitions. The author finds the case of this company to be most intriguing. The nature of demand and industry structure forces companies to engage in aggressive M&A practices. In this case, M&A is a vital corporate strategy. The author will also investigate other means by which aggressive M&A is also presented.

1.2 Structure of the Work

This thesis contains a thorough business and strategic analysis of Electronic Arts™ - a developer and publishing company whose main value generations stem from the interactive software of entertainment industry. Advances in the computer sciences and IT gave a complete overhaul of this industry by providing faster computer processes and limited implications of quantum computing. These developments changed the business model, means of delivery, and even business to business relations. Interactive software development faces a challenge greater than other niches in IT - a rapidly changing demand from its customers. The demand in this niche is very complex due to the educational and socio-economic background of its customers. Currently, the customers of this niche are mainly between the ages brackets of 15-35. The share of current customers shrinks as we increase the age brackets but it may not be the case in future. To cope with this changing demand,

most companies in this sector employ M&As for staying ahead of their competition, this prompted the motivation behind this thesis.

The purpose of this study is to analyze various economic and financial indicators to assess the effect of aggressive mergers and acquisitions on the company's long term bottom line. In addition, the document will serve as an academic and professional milestone due to its broad spectrum of topics from strategic management and market positioning to financial management. The author will employ strategic corporate framework provided by David (2009) and then will focus on the financial accounting analysis of the balance sheet and income statement (discounted cash flow), and enterprise valuation techniques.

This thesis contains the following structure: Chapter two will focus on company history and how it evolved over time. Chapter three will be dedicated to formal assessment of the company's image and outlook. The author will focus on the mission, vision, and company's ideological foundations. Chapter four will focus on the broader industry in which the business is concluded. Chapter five will provide an in-depth external audit of the company. The audit will cover various matrices such as competitive profile matrix and etc. The aim of these matrices is to provide a better picture of the company's market positioning. Chapter six will be the longest and most detail-oriented in this thesis. This chapter provides quantitative evidence in addition to its internal managerial audit. The matrices involved include internal factor evaluation and grand strategy matrix among others. Chapter seven will be the final chapter which will conclude the findings and the author will provide his own take on the subject of mergers and acquisitions.

1.3 Literature Review

The author will address a wide range of topics in this thesis but the main question revolves around mergers and acquisition. The general opinion is that companies must retain and grow their intrinsic value. The author found evidence to the contrary pointed out by Wang and Moini (2012) from Denmark. In contrast, there has been evidence of negative reception from USA's large corporation with an acquisition announcement (Moeller, et al., 2004). More recent studies have a different take of M&As. "…The stock returns of bidders are not significantly different from before mergers". (Malmendier, et al., 2012). The author agrees with another study done by DePamphilis that "the majority of mergers and acquisitions have a success or failure depending on how the success metrics is defined (DePamphilis, 2012). There is no one standard measure that fits all cases,

but rather the measures are industry-specific and open to debate. While the author does not believe aggressive mergers are healthy for every company, he does not share the opinion of Koller that "intrinsic value is better than acquisition" (Koller, et al,. 2005).

2 Overview of EA: An Evolving Company.

2.1 EA History (1985-2015)

Electronic Arts is a global company with headquarters situated in Redwood City, California, United States. EA has been an American software developer, marketer, publisher, and distributer of interactive software for more than three decades. It was founded it 1983 by Trip Hawkins, an American entrepreneur who also founded 3DO and Digital Chocolate. Hawkins left apple Inc. to build one of the most successful companies in entertainment industry. EA started its operation with a mandate of an independent publisher. According to Bloomberg "EA became a professional conduit for other people's work" (Waugh, 2006). As the company grew, its managerial needs grew with it. Hawkins began his recruitment of his former colleagues from Apple, Atari, Xerox PARC, and VisiCorp. The most notable of them was Steve Wozniak who agreed to sit on EA's board of directors. (Levy, 1984).

After a successful launch in 1983, the company started to expand drastically. In 1990 EA decided to take part in the new "Sega" console. After their joint venture EA was more focused on intrinsic growth (Waugh 2006). It has been suggested by Waugh that Trip Hawkins was more of a developer than a businessman. In 1991 Hawkins left the company to Larry Probst. After this change in management the company started to venture in a different direction.

After Hawkins's departure in 91, EA listed itself on the stock market and began a wave of acquisitions beginning with "Distinctive Software" and started to expand further in the industry. Amongst its list of acquired companies, the most notable ones are "Maxis" and "Westwood". These two acquisitions plunged EA into many controversies about their future plans. Waugh (2006) believes that there is a pattern to these acquisitions. He claims that EA finds a company that attracts customers with its intellectual property and will absorb their ingenuity through the use of mergers.

EA's continuous mergers with successful smaller companies became wide practice amongst its competitors. This instrument was used in the past and it is still being used as one of their core strategic tools to generate revenue.

During this time frame, EA started to receive various forms of publicity. In 2005 a writer and game developer, Erin Hoffman detailed the daily events of her life on Live Journal (Hoffman,

2005). Her husband was working at a Development studio. "The current mandatory hours are 9am to 10pm – seven days a week." She wrote in her online journal, "with the occasional Saturday evenings off for good behavior at 6:30pm" she added. It was these lines and many more that prompted a response in other employees. Three class action lawsuits caused changes in various aspects of the industry, such as employment type. The law suit causes a reclassification of entry-level artists as hourly employees and makes them eligible for overtime under California law. The Guardian reports that EA reached a settlement of 15.6 million dollars (Williams, 2005). A similar law suit was lost by EA for 14.5 million dollars.

In February 2007 Probst stepped down as EA's CEO while remaining on the Board of Directors. His successor John Riccitiello, who was an employee of EA for years, sat on his chair. Though the management had changed, EA's long standing business policy of aggressive mergers remained. The newly appointed CEO, Riccitiello, started the overhaul process for EA. Under his management, EA would be divided into four divisions or "labels", each with autonomy over their own product development and publishing. The mandate of the reorganization was to create independent operations of various business components, faster decision making processed and increased creativity and quality. However, the strategy was more aimed at rapid market expansion (Electronic Arts, 2007). A week later, EA faced its largest merger yet -the acquisition of VG Holding Corp.This deal was reported to be worth $775 million (Letzing, 2007).

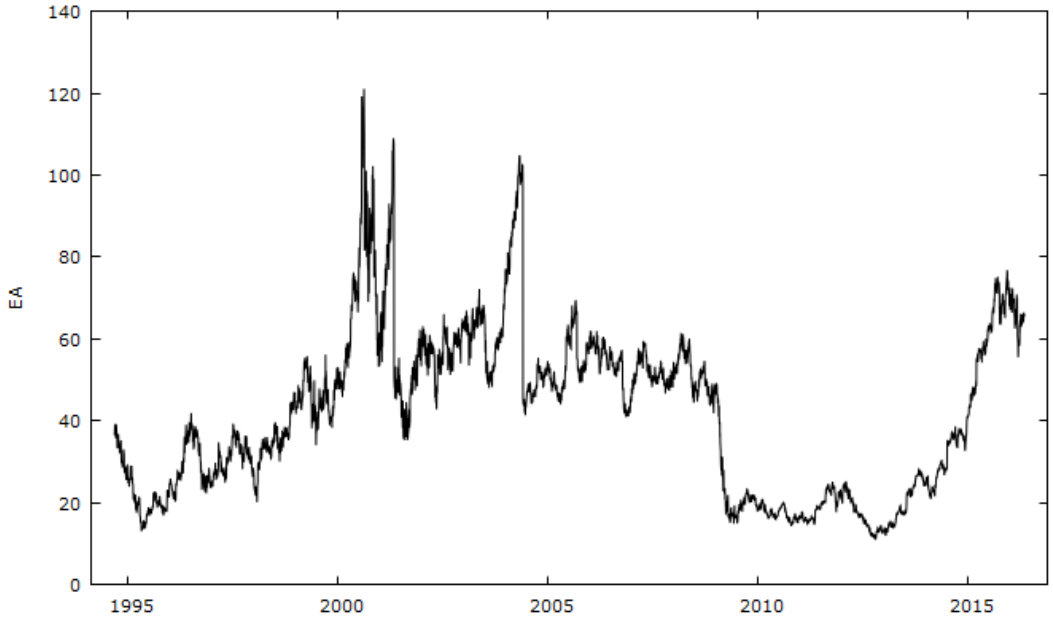
In 2008, EA was challenged by an economic crisis which had started a year ago in the United States. Riccitiello admitted that the company's poor performance was caused by the financial crisis, but he also noted that EA did not publish any "blockbuster" games in the fourth quarter of 2008.

In 2013, Andrew Wilson became the new CEO of EA and started to close down several divisions of EA. Under his management EA will focus on smaller projects and creations of "Competitive gaming experience and ESpost events". (Pereira, 2015).

2.2 Financial History of EA

In this section the author will examine the financial history and the market's attitude towards the company. One of the most important indicators is the stock price. Figure one will explain the prices of EA from its conception in 1990 until February 2017.

Figure 1: Electronic Arts evolution of stock price (1990-2017)



Source: Yahoo finance.

The trend is fairly apparent. The company's stock prices began to rise over time. The company started as a small company operating in the industry. As the industry grew, the company grew with it. We can see the fluctuation in the late 90s and early 2000s. This sudden shock is attributed to the infamous IT bubble. Unlike many in the industry, EA was a company that was justly priced. When the bubble burst, the company lost some credibility amongst the investors. In the years following the bubble we see a clear increasing trend for the stock price. This trend ceases to exist during the events of Subprime mortgage crisis.

When comparing the IT bubble and subprime crisis one must consider that the majority of the mortgage owners belong to the middle class socio-economic background. As the crisis unfolds the company price falls with it. It took a long recovery and reconsideration of their business strategy to make this leading software developer return to its initial upward trend at the end of 2016. The author acknowledges that the 2016 price spike might be due to United States Electoral cycle (45th Presidential Election).

3 EA Formal Business Assessment

3.1 Company Vision.

Strategic Management is an ongoing process of understanding and adapting to business outlook and orientation. The analysis of strategic management begins with a Formal Assessment of the company's mission and vision statements.

A vision statement is usually a short description of the company's founding principles, structured so that it will give the reader the company's reason for existence by providing the utility generated from their company. Unfortunately, Electronic Arts does not provide a precise business vision in their annual reports or website. The business may suffer from lack of identity if the vision statement is not publicly known and clearly defined.

3.2 Company's Mission Statement

A mission Statement can provide a basis of managerial decision making, As David (2009) suggested: "Another benefit of developing a comprehensive mission statement is that divergent views among managers can be revealed and resolved through this process." According to him, a second mission statement must address nine crucial topics. These topics are

- Customer
- Product and service
- Markets
- Technology
- Concern for survival, growth, and profitability
- Philosophy of the company
- Self-concept
- Concern for public image
- Concern for employee

When it comes to the written mission statement, there are no solid measures to state whether one mission statement is better than others. It is case-specific and companies who truly understand their business can draft an appropriate one for their company. EA's statement is very

unconventional to these nine concepts. The firm begins by calling their values "actions". According to EA these "actions" provide a guideline for their interactions with customers, partners, and suppliers. These actions are considered to be basis of EA's "global code of conduct". Therefore, by definition they can be used for the basis of our analysis. Below, we analyze how these values are related to our frame of reference.

Be bold:

EA explains the notion by the following statement. "Go big, take the right risk, back our bets, lead." While this statement can be interpreted in number of ways, the author firmly believes that it was intended for employees. The statement is giving employees the directive to be the best they can be. While it genuinely conveys a quality that employees must display, it is structured so that it may be perceived as a one-sided, ambiguous rhetoric. Employees must take the right risks, back their bets, lead, but it fails to mention how the company will value their contribution to its whole overall strategy.

Think player first:

The notion is explained by: "Listen, respond, deliver beyond their expectations and build life time players." Judging by the structure of this statement and considering its meaning in the context of global code of conducts, it is clearly intended for the customers of EA. The creator of this statement has wisely chosen the word "player" to convey the utility attributed to their customers. While it does touch upon the customer, the statement is indirectly related to employees.

Create quality and innovation:

"Deliver products and services that surpass expectations, be relentless about improving quality, and take creative risks." It follows the pursuit of constant improvements for EA's products. But it fails to specify what the firm's major products are and which attributes or aspects of their products should be improved upon.

Act with integrity:

"Do the right thing, trust others and support their decision, be transparent." This line can be attributed to their employees and support structure inside the company. It speaks of how employees should behave, yet it fails to provide proof for employee's value to the company.

Be Accountable:

"Deliver commitments, always do what we say, play our position, deliver and reward results." Another line from their code of conduct but this one seems to be more aimed at staff members in managerial positions. While it gives basis for how an employee should behave, it fails to provide the employees' value to the company.

Learn and grow:

"Work hard, play hard, develop yourself and others, measure your improvements, share knowledge generously." This statement can be interpreted as the message a company gives to society. The message is again focused on the employees and how they will grow and improve upon society as a whole.

As we analyze the "actions" provided by EA's code of conduct published on both company website and in annual reports, it is easy to point out that the company did not touch upon important topics such as the self-concept, technology, and markets of the company. One could argue that the company's philosophical roots are blurry and the company may suffer from lack of vision, however, reading these "actions" one could get a sense of the company's ideological foundation. A foundation that is at odds with their policy directives, as will be proven in chapters ahead.

4 Industry Analysis

4.1 Historical Overview

It is commonly known that the interactive software industry planted its roots in the 20th century. In 2005, Ralph Baer was awarded the National medal of technology by President George W. Bush for his contributions to the industry. He was an electronic engineer and defense contractor for the US armed forces in 1951. It was he who first brought the idea of linking interactive software to television sets.

The idea could not come to life for another fifteen years. In 1966, he was granted an opportunity to create his vision. The following year, he and a group of engineers developed the first interactive software that could be displayed on a television set. Several years later, in 1972, the first game console named "Magnavox Odyssey, was brought to the center of attention in California (McDonald, 2004).

Despite Magnavox Odyssey's success at the time, the product was priced at $100 which was considered to be expensive at the time. Furthermore, there was public misunderstanding of technology at the time which led to a rumor that Magnavox needs a special television set (Magnavox TV). This misconception undoubtedly caused the considerable plummeting of the sales. Though they managed to sell nearly 100,000 units in their first year, it eventually lost its dominant position in the market when other companies started to take notice of their success.

In just one year, a startup company founded by Nolan Bushnell and "Atari" rose to a dominant position through product differentiation techniques. Their success was owed to the sound and high success of their simple ball and paddle game and other products such as pong. Between the years of 1972-1974 more than 30 products was released by 11 companies to be played on Atari console system. In 1976, the market showed an incredible growth leading to 60% more demand than any company forecast or anticipated (Business Week, 1976).

By 1983 the sales were close to $3.2 Billion, with a 400% jump in revenue comparing to its previous year. With such high demand, companies started to enjoy huge margins including market share with limited competition in the United States. As is often the case of markets with low competition, the quality started to decline. In 1984, there came a shock to this market - home

computers were available at relatively lower prices. Consumers had an opportunity to procure low cost computers with superior technology. They chose the latter and sales began to fall drastically. These events led to the crash of interactive software industry in 1984 (Kent, 2001).

As the years passed, computers became more sophisticated; "The number of components on computer chips will double every eighteen months and two years." Said Gordon Moore in his 1965 paper "Electronics" (Brock, 2006). As these components increased, so did the storage area for software which allowed for bigger and more complex ones to be developed. These allowed interactive software developers to incorporate high quality music and graphics. During the 80s, Nintendo dominated the market. As we get closer to 90s, the picture begins to change. A rise of other startups and big corporations such as Sony and Microsoft began to contribute to this niche with Sony's entrance in 1996 and Microsoft's Xbox in 2001 (Kolter & Keller, 2009).

Today, the market is stretched far and wide across the globe. The products do not include entertainment niche such as video games. Interactive software has found its place in military combat simulations and educational purposes for important professions such as flight simulations in NASA and other aviation applications like civilian aircraft simulation. In medical science and specifically in surgical procedures, students will first operate on a computer-based simulation using the very same technology and software that is used to play video games. With its real-life and often three-dimensional simulations, students will start their training on these computer-based simulations before advancing themselves to their respective positions.

The dominant position in this niche is directly related to the development of technology as was the case of Sony and Microsoft. They held enough capital to patiently research and develop the next generation of consoles. A bypass strategy is widely practiced in high-tech industry. To ensure success, companies must say ahead of the research curve or risk losing the market.

4.2 Structural Analysis

"A structural analysis gives a framework for understanding the competitive force for operating in an industry that is crucial to developing competitive strategy." (Porter, 1980) When we analyze the international business environment, examining the industry's frame work will provide context to our analysis and aid in giving a clear picture between how the firms position themselves in their respective niches. Interactive software development is currently dominated by multinational

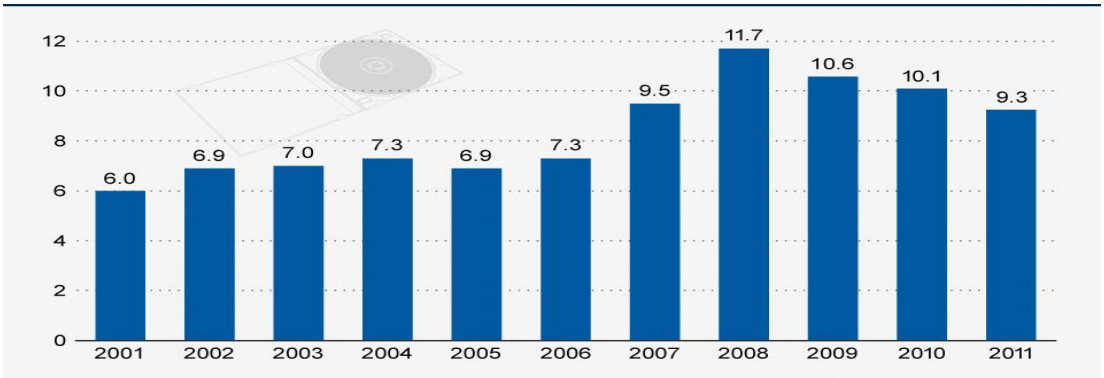
corporations. This section provides a brief overview of vertical spectrum and upstream and downstream markets. We will compare two of the largest manufacturers of interactive software and their respective value chains.

The interactive software development can be segmented into five vertical stages: Development, Publishing, Manufacturing, Distribution, and Retailing. This industry also consists of two very distinctive sides, hardware and software development. Although hardware development is very important and plays pivotal point in the structure of IT industry, it is not the focus of this thesis. As many other industries, some of their activities can be done indoors while others may be outsourced. This section will focus solely on vertical integration.

4.2.1 The Upstream Market

The upstream market is consists of hardware and software. Four main sources of hardware for users were the PC with 52% usage, Smartphone or tablets with 44%, Sony's play station and Microsoft's Xbox with 28% and 23% respectively (Game Developer Conference, 2016). Software is mostly developed in-house or companies' developers are mostly acquired by large publishers and thus exercise less autonomy. It stands to reason that they are provided higher funding through their parent company. With customer demand showing increase in complexity, it is not very easy to start a company in this niche. It has become increasingly more expensive to develop interactive software. A Ubisoft executive gave a breakdown of the company's average development costs per software with a DS title costing between $785,000 to $1.57 million, "PS3/Xbox/PC" titles averaging $19-$28 million to create for all three platforms, and a "Wii game" expected to cost $7 to $ million to develop (Boyer, 2008). Rising costs and lack of financing have forced the companies to engage in brutal competition. In the Crisis of 2007 and its aftermath, economists expected the industry to shrink in size and crash. It has however shown a steady stream of customers who are willing to pay for what is justly categorized as a luxury good. The figure below illustrates the sales in the United States alone.

Figure 2: Physical Retail Sales of Interactive Software in the US, (In millions of US dollars)



Source: Statista

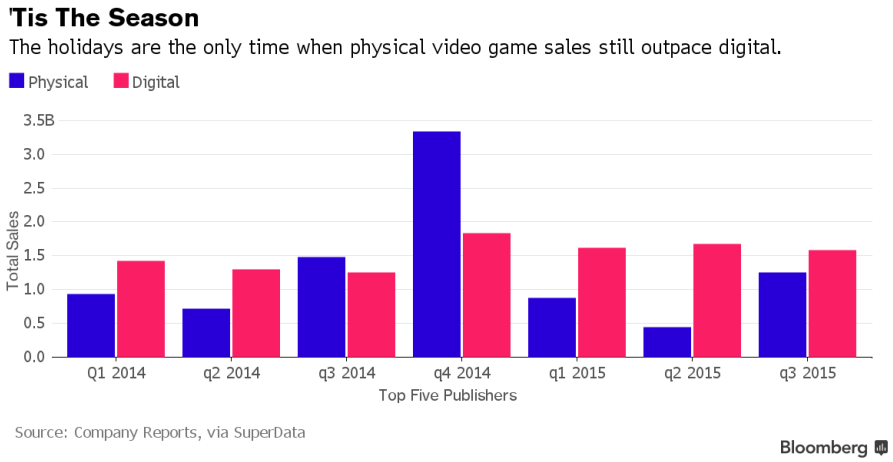
As overall industry indicators have not changed before and after the global crisis, developers are still lacking financial support which is often obtained by large corporations.

4.2.2 The Downstream Market

The downstream market will commence at distribution; it also contains the same components of hardware and software as the upstream market. Publishers often organize the distribution of the software. Each publisher is legally obliged to obtain a license for the right to sell the software to a particular platform and thus pay royalty fees. Within this industry, Microsoft is the only company which has integrated all three functions of software development, hardware development and manufacturing and publishing under the same roof. As mentioned in the previous chapter, Electronic Arts became the largest independent publisher of sales by volume after their merger with "VG Holding Corp". However, their dominant position came under threat when United States based "Activision Inc" announced a merger with Japanese company "Konami" and French based "Vivendi" and "Ubisoft".

As for the sales, publishers organize distribution rings through local means such as supermarkets, toy specialists and department stores. As one survey found out in Ireland, supermarkets account for 34%, toy specialists for 14% and department stores combined together accounted for 75% of distribution in 2006 (Euromonitor International, 2006). While the physical distribution is still a part of revenue, we begin to see an increasing trend toward digital methods of delivery over the internet.

Figure 3: Sales of Software by Top Five Publishing Companies



Source: Bloomberg Business.

With physical sales on the left of each quarter and digital sales on the right, it is intriguing to note that the New Year holidays were the only period when physical sales outperformed digital sales.

4.2.3 Regional Value Chain

There are a number of traditional markets worldwide. Three regions are divided between North America, Europe and the Middle East and Asia - Pacific (Datamonitor, 2008). The United States has the largest number and concentration of both developers and publishers with a dominant presence in global markets. This can be attributed to IT hubs such as Silicon Valley, which as the largest market in the world accounts, for $15.4 billion in 2014 (The Statistics Portal, 2016).

4.2.4 Company Strategy

- A company's position is often determined by the characteristics of the markets they operate in. These characteristics include (Daniels, et al., 2009):
- Degree of specialization: the degree to which companies should focus their efforts in accordance to their product lines, the target segments, and the geographical markets served.
- Brand Identification: the degree to which the companies should seek brand identification rather than competition on price and other variables achieved via advertising sales, and etc.

- Technological Leadership: the degree to which companies should compete to produce technological innovations.
- Cost positioning: the sales strategy they should choose, such as low quality, low cost; or high quality, high cost.

4.2.5 Electronic Arts Strategy

The aim of this thesis is to understand the behavior of Electronic Arts in the market. A rival firm (Activision Blizzard) was also chosen for the purposes of bench marking. As EA's main rival it is important to understand and compare their strategies with each other. Electronic Arts had a market share of 11% in 2014 (Shields, 2015). To maintain such high ratios, EA must acquire a portfolio of licenses and rights. These licenses allow for updates and continuation of their franchise. EA has chosen to acquire other independent developers or procure license to their most successful ventures. During the 2014 fiscal year Electronic Arts experienced $3.5 billion in revenue worldwide with negative 6% (decrease) from the previous year (Electronic Arts, 2014). As indicated, EA has experienced slow growth and underperformed their expectations. According to their 2014 annual report, this decrease is "primarily due to the increase in our estimated offerings period". At this point the largest threat to their activities is further loss of market share to Activision Blizzard.

4.2.6 Activision Blizzard Strategy

Activision and Vivendi Blizzard merged in 2007, forming the well-known Activision Blizzard. The newly created company is currently leading the market by commanding 13% of the market share (IBIS World). The merger brought several companies from different corners of the world together and created a super pack of very diverse people. As we discussed in EA's strategy, acquiring smaller independent companies is a widely accepted practice in this industry.

4.2.7 Emergence of Internet

Internet access has become increasingly more available for people across the globe. In addition, there is an increase in speed of broadband, making internet access easier than before. Internet is perceived as a desired platform to offer interactive software to customers. For instance, the Chinese internet giant grew 22% in net growth in the fourth quarter with the net profit $1.8 billion, offering online interactive software (Osawa, 2016). Further development of internet service will offer multidimensional potential for companies such as Electronic Arts. The old business model composed of sales via retailers as mediators of tangible products, whereas the new model includes

the delivery of software via internet and companies have shown great interest in this subject (Brustien, 2015) to utilize such a model would eliminate the threat of digital piracy and illegal distribution, however, this venue is not completely explored yet. The companies must further invest to provide a server, which is considered a sunk cost, and maintain their servers as it would become a prime part of their value generation process. While it may seem optimal, it is not without its challenges. Digital piracy may hurt company revenues, but reliance on the internet would expose the company to cyber-attacks. Therefore, an optimal strategy would call for investment in both. However, as the sunk costs of owning and maintaining a server may be high, companies are reluctant to offer their product via internet.

4.2.8 Customer Demographics of Industry

Interactive software niche is very diverse and has one of the richest demographics amongst its customers. When we look at the data provided by Entertainment Software Association in 2015, we can get a clear picture of demographics in the American Market. According to this report, 155 million Americans are regular subscribers to such software - that means two users on average in each household. The age group of under 18 holds 26% of the total user in the dataset, with a higher percentage of females in this group. The age group between 18-35 holds 30 % of users. This age group holds the highest concentration of users compared to the rest. The age group of 36-49 and 50+ has 17% and 27% of total customers respectively (Entertainment Software Association, 2015). Judging by the data provided it is easy to see that 56% of customers are below 36 years old. Electronic Arts and other competitors target young people that have similar profiles which creates certain homogeneity in the marketing approach. This also presents a challenge for companies to avoid banal products and become festered with creativity. In the world of business this creativity means more search for graphical and dramatically artistic expression leading to further expansion of intangible properties and ultimately additional costs of market research.

4.3 Porter's Five Forces Model

Porter's Five Forces Model is a framework that analyzes competition within an industry and business strategy development (Porter, et al., 2002). In this section the author will conduct a replication of this model in the interactive software industry.

4.3.1 Customers

Buyer power is considered to be high to moderate. Customers in this industry are mainly software users with specifically identified profiles which were mentioned in demographics of the industry. Customer demand has a strong pull on the publishers. Customers demand better quality and their demand has followed an upward trend toward sophistication over the years. An increase cost of developing such software is attributed to the complexity of demand. Buyers have a strong negotiating position due their number and their influence over the local market. In addition, buyers incur low switching costs and can turn to other publishers if they feel the product is not worthy of their financial compensation. This is the reason why both EA and Activision Blizzard are very sensitive to publicity and attitude of internet users. With such description we can see that brand loyalty is low. Even though a famous franchise or license gave certain recognition and their success established through their long-term customers, their success still depends on customer reviews which contribute to an increasing market power of buyers. It may seem unfavorable for the industry to have such high-powered buyers.

4.3.2 Suppliers

Supplier negotiating power is very high, even higher than the buyers'. The development of software implies labor intensive products. This market requires a diverse set of services to perform adequately. These services include artists, designers, engineers, programmers and music and visual studios. In addition there are many licenses and rights which are considered intellectual property that have to be used in final products. The variety of input necessary to create a successful software publishing can be considered as research and development. As many independent developers such as Electronic Arts and Activision Blizzard do not have adequate capital requirement to invest in the hardware, they must accept their input from other suppliers like Nvidia, Radon, Intel, and other hardware manufacturers. This hardware can be used to run software engines. All these factors magnify the supplier bargaining power to the industry. As they are creators of hardware, they can increase the switching cost for the final user. We can provide many examples of Microsoft and Sony negotiating with RockStar North™, another developer and publisher. After rounds of negotiations they convinced RockStar North to release the next series of their blockbuster franchise "Grand Theft Auto V" exclusively on their platforms, leaving the computer users out for nearly one year.

4.3.3 New Entry

The threat of new entrants can be seen as low to moderate. Barriers for entry are not enforced by regulators, but rather by the challenge a new startup would pose to established brands. Due to high fixed costs in this sector, the entry to this industry can be seen as "unattractive". Furthermore, developments of software are often a lengthy process and the time scale for return on investments can be long. Subsequently, companies that wish to start their operation must cover tremendous startup (sunk) costs. As mentioned before, one of the important factors contributing to the success of products is intellectual property such as software coding and artists' loyalty fees. It is apparent that large companies such as EA would have massive advantage over the startups in both software coding and learning curves. Innovative concepts have attracted a lot of attention and success by startups. Thus barriers to entry can be described as low. But it will be solely dependent on how the new entrants consolidate their concept and image in the market.

4.3.4 Substitution

The threat of substitution of products can be considered as moderate. The presence of intense rivalry is the major reason contributing to this notion which may deprecate overall profitability and unless publishers can offer product differentiation through superior performance and unique competitive advantage, it may not survive for long. This industry is also threatened by cross-industry substitution. Customers may procure the same level of utility from other products such as music, movies, live events, and concerts. Due to the dependency of this industry on hardware and platform, it is witnessed that the niche can come under threat from startups operating on new platforms such as tablets and Smartphones.

4.3.5 Rivalry

As the authors mentioned earlier, the level of competition in this industry is very intense and can be categorized as high. The development of successful software is time-consuming and often may fail to generate expected profits. Furthermore, this industry's main value generators are from intangible sources and it is labor-intensive. Thus the industry suffers from minimal economics of scale; this caused the industry to be intolerant to any increase in production (development) costs resulting in intense competition between major players. All the main publishers are almost of similar size in terms of market share and have chosen to bring focused strategy that is dependent on lower diversification of their product lines which in turn, amplifies the competition.

4.3.6 Conclusion of the Model

This niche is considered to have high competition, high buyer power, desired levels of new entrants and high supplier power. The industry is perceived attractive from the customer perspective as it has very low switching costs and intense competition forcing firms to be highly flexible to customer preferences. The level of financial consolidation in this niche is relatively high and can be considered undesirable for the future development of industry.

5 External Assessment

5.1 Competitive Profile Matrix

"The Competitive Profile Matrix (CPM) identifies a firm's major competitors and its particular positioning in the market." (David, 2009) CPM strives to create a quantified basis for comparison between two firms. As the author has selected the Interactive Software Industry, this thesis will continue to examine the differences of strategy in business. The selected firm for this comparison, Activision Blizzard, is one EA's most prominent competitors. Appendix One documents this matrix in greater detail. The author has selected several important variables that will determine forces in the market competition. Appendix one also documents the score that was assigned to each company. Based on a research conducted by the author, Electronic Arts receives the score of 2.49 while Activision Blizzard receives 2.76 points. For additional information refer to Appendix one of this document.

The analysis will begin with advertisement in the market. It is the most important part of the software development. However, this niche of IT industry is particularly attractive to the younger generation who are technologically savvy. Both of these companies have shown strength in their advertising strategies.

Both of these companies adopted what the author considers "Conglomerate Behavior". Conglomerate companies are usually big holdings with many subsidiaries and underlings in their portfolio. Their business functions may or may not include profit generation. In case of Activision Blizzard and Electronic Arts, these companies venture into the market. They both exercise their dominance through the use of mergers and acquisitions. Although acquiring a company is adopted by many firms in the industry, the author believes that in-house growth is far more important than acquisitions. While many believe the author's assertions, acquisition is a fast and safe way of market penetration.

The most important part of the CPM is company's research and development. Both of these companies have outperformed their competitors. Another important feature of the competition is financial positioning of these companies. Both performed well, but it is documented in the net worth analysis (see Appendix III) of these companies that Activision is currently underperforming compared to Electronic Arts. The reason is that Electronic Arts had invested in their "labels" and

will release a series of profitable block busters in years 2016-2017. (Electronic Arts 2014) Indeed this was not a hollow promise and EA did follow through on their word. Furthermore, the distribution of the dividends decreased the retained earnings and their market share and has chosen to bring a focused strategy that is dependent upon lower diversification in their line of products which will ultimately amplify their competition.

In conclusion, this niche is considered to have intense competition, high buyer power, desired levels of new entrants and high supplier power. The industry can be seen as an attractive venue from the customer's perspective as it bears very little switching costs and intense competition resulting in the flexibility of firms to customer's preferences. The level of financial consolidation in this niche is relatively high and can be considered as undesirable for future development of the industry.

5.2 External Factor Evaluation Matrix

"An External Factor Evaluation Matrix allows strategies to summarize and evaluate economic, social, cultural, environmental, demographic, environmental, political, governmental, legal, technological and competitive information." (David, 2009) The EFE matrix is presented in Appendix IV.

Overall, the companies have performed relatively similarly. Both of these companies have engaged in heavily invested marketing campaigns; however, it may not be sufficient for their profitable investment perspectives. The industry is inherently creative and value generation comes from creation of new products, franchise and labels. When it comes to growth, Electronic Arts has not performed as well as it did several years ago. According to their 2014 announcement, they have plans to make a stand in 2015-16 with their blockbusters. The authors concluded that Electronic Arts has not utilized demand for their products to its fullest potential. The author also acknowledges that Electronic Arts did follow through with their promise. Unfortunately, their progress during 2016-17 cannot be taken into consideration in this thesis, because the benchmark firm has not completed their annual report as of the time of the publishing of this thesis.

Both of these firms confirmed relatively the same when it comes to the next generation hardware. It is a necessity which is forced on the industry from upstream markets. Both of these companies have performed exceptionally well when it comes to capitalization beyond their incumbent industry. These expansions include the creation and sales of entertainment novels, action figures and inspired blockbuster Hollywood movies. While EA has pursued this avenue more than Activision, they both gathered enough cloud for celebrity involvement of their products to boost sales.

When it comes to diversification, Electronic Arts is at a geographical disadvantage. Activision owns and operates in many different countries. While EA's reliance on its American roots is great, they started to take notice of this shortcoming. Currently, EA is making wave acquisitions in the South East Asian market. This strategy was a follow up strategy by EA as was acknowledged in their annual reports. Their next move would be to demonstrate a presence in Latin American markets. As this is a relatively new strategic decision, the author will not comment any further about the success or failure of this strategy.

In the upcoming chapter about internal assessment, the author has uncovered a strange anomaly in the financial reports. Electronic Arts pay less effectively than Activision. One of the primary reasons is that, unlike EA with a solely American base, Activision has multiple bases dispersed around the globe and thus it is subject to various tax codes. This fact is an important part of our matrix, but it will be discussed in greater details in the upcoming chapter.

When it comes to threats from the exterior environment, the first and foremost topic is digital piracy. While it may never disappear from IT industry, there are several attractive alternatives which may regain some of the lost revenue. Electronic Arts has demonstrated a strong willingness to participate in the online products and use of servers. Electronic Arts has shown its presence in the field, however Activision Blizzard has invested much more into their online campaign via their use of internet servers. Electronic Arts has realized the need to pursue this avenue as stated in both their 2014 and 2015 annual reports. So far, Electronic Arts has kept its traditional IT model of relying on encryption lucks. The company has invested a large portion of their efforts in related products and services. In contrast, Activision has relied on this technique as well as the simultaneous creation of an online server. Some of their products can be offered through their servers. Both of these strategies are perfectly valid, but the cost of maintaining both may not be easy to bear in the future. The perfect analogy would be "a servant of two masters". The company cannot survive under the strain of both costs as their demands increase in complexity.

As for hardware development which serves as a platform for their respective products, Activision falls behind their curve as they are more focused on their online expansions. That was until their latest strategy to upgrade their servers and their online platform. Naturally, this upgrade places them ahead of Electronic Arts, but it comes at a cost of falling behind on their development engines which puts EA ahead of them.

Both of these companies face threats from misuse of subscriptions in India and China. In this particular area, Activision has a vastly superior position due to their embrace of online delivery of products.

Another source of viable threat to both of these companies is bad press or "word of mouth". The author has seen this incident as a sign of strength for Electronic Arts, as it has adopted a liberal set of values to be presented in their products. Activision has adopted a rather conservative approach and for the most part, they try to remain neutral towards cultural aspects of their products.

The author does not make any comments on the right approach to dealing with social matters related to their products. Financially speaking, the adoption of liberal ideology has brought more business for Electronic Arts.

6 Internal Assessment

This section is dedicated to an in-depth analysis of factors which can be controlled or manipulated using company strategy and sound decision making. The chapter begins with a financial analysis of Electronic Arts and Activision Blizzard. As mentioned before, Activision is a relatively similar company to the one which is our main focus. While it is impossible to find two perfectly homogenous firms in the market, these two share a great resemblance. The main reason why the author has chosen Activision was its presence in NASDAQ. Both of these firms are traded in NASDAQ and they must comply with the same standard of financial and accounting reporting which makes them comparable. Neither of these firms has other unrelated diversification and they do not benefit from synergy with other divisions like the interactive software development in Microsoft.

This chapter begins with an Internal Factor Evaluation Matrix (presented in Appendix V) and will continue with the Organizational Matrix. It is then explained how the matrices differ across the two companies. In addition, the author will conduct an analysis of the company's stock performance before heading further into their respective balance sheets and income statements. The author has dedicated a special section to the company's performance during the financial crisis of 2007.

6.1 Internal Factor Evaluation Matrix

"This strategy formulation tool summarizes and evaluates the major strengths and weaknesses in the functional areas of a business, and it also provides a basis for identifying and evaluation relationships in those areas" (David, 2009). The author has constructed this matrix to provide an insight into the company and its selected bench mark competitor.

The global presence and immense success of Activision's franchise is the primary source of strength for Activision and primary source of weakness for EA. Others reasons include strong financial indicators, strong R&D positioning, being an industry leader, dominant market position, diversification of products, independent ownership of music and visual studios, a strong legal department, availability of other liquid assets (mainly cash) and diversity of employee profile. Among weaknesses that are mutual to both are the dependency on licensing, low employee morale and

productivity, limited product diversification, aggressive mergers rather intrinsic growth, excessive equity in case of Electronic Arts and excessive debt in case of Activision.

The results have been mentioned and discussed over the previous chapter, but the substance of the material is yet to be analyzed. Activision's strength has carved a place above EA's performance. Activision has been able to create a massive amount of profit over the last decade with their franchise. The author acknowledges that unlike EA, Activision benefits from an international background. EA had to create and defend its longstanding titles such as FIFA series and other series under EA Sports®.

When it comes to financial positioning, Electronic Arts is benefiting from higher margins and better cash flow. More information will be presented in the financial analysis of this chapter. While Activision is behind on some indicators, the author does not see this as a hallmark of failure. Due to hyper sensationalism presented in the market, it is very typical for a company to remain quiet for a while before releasing their blockbuster products.

Another important segment is R&D which includes both companies. The author argues that due to the creative nature of both companies, it is easy to mistake the whole company for one giant R&D department. R&D is still only a part of a company despite the unwillingness of companies to mention it separately in any policy or initiatives. The author believes that EA is ahead of the hardware curve due to its immense diversification of products. Activision's primary source of income derives from a series of blockbuster franchises while EA offers a more franchised and more diverse set of interactive software to be explored by its customers.

Another source of strength is that they are both industry leaders. EA is a pioneer in the field, but Activision has also carved a respectable name for itself. EA enjoys the benefit of being a pioneer and often experiments with newly updated systems and techniques. This pattern of behavior is more aggressive in EA than Activision.

Closely tied to the previous paragraph, market dominance is a major indicator for the company's performance and EA has been lagging behind Activision for several consecutive years. Although in 2016 they successfully managed to narrow the gap between themselves and Activision, they are still lagging behind. While still controlling large portions of the market, their dominance is dependent upon the next releases of their franchise. Their next blockbuster hit in 2017 was received

with some mixed reactions. Financially speaking, it was a success in generating profit and boosting company performance, but it was still not enough to sate the appetite of its customers. The author argues that for the moment, EA enjoys their high performance but it may not last due to customer dissatisfaction. The evidence is the continuous loss of market share and limited number of products offered in the interval between 2013 and 2015. EA's 2015 annual report speaks of their new product lines and the continuation of their famous franchises. EA did follow through with their promise by offering new products and they were relatively successful.

The next item on the list is the diversification of products. In this case, EA has the upper hand and Activision has a weaker position. The author will stand by the comments in the previous paragraph -Activision has performed better, but it will be a matter of time before Activision's customers' enthusiasm deplete due to the company´s specialization in one genre. EA in contrast have always looked for a wide variety of genres for entertainment products, platforms in case of hardware and different methods of distribution.

Independence of the music and visual studios is vital to their products. Both of these companies have equally explored this option. The availability of a strong legal department is also crucial for these companies, which both have attested thoroughly.

Activision and EA are operating in a very customer-driven industry and suppliers have a lot of power over these companies, especially the complementary goods that are hardware platforms. It is essential for these two companies to have access to excess cash on their balance sheets. Both of these companies' accrued sufficient amounts of cash and one could make an argument that a major drop in Activision's wealth is due to costs and investments; the author argues that it has dropped below their historical norm. For more detail, refer to the financial analysis of this chapter.

As the author mentioned earlier, this niche is highly creative. This nature of the industry works in favor of Activision as it can have a multinational base and benefit from a wide range of international workers with different perspectives. EA is lagging behind; it has thus far delivered an excellent counterbalance to Activision.

When it comes to threats facing both organizations, they have both managed themselves well and their behavior can be categorized as "stabilization". Stabilization means growth for the company and their shareholders. The weaknesses identified for both of these companies are uneven balance

of cash flows, dependency on licensing, low employee morale and productivity, limited product diversification, aggressive acquisition rather than intrinsic growth, excessive equity.

A major source of concern for Activision is their uneven balance of cash flow. These companies can operate years before they release one of their major franchises. This strategy, whether sought or unsought, has caused massive cash flow influxes in some years and often very low or zero influx in others. This weakness is unique to Activision. When we look at their financial statements presented further in this chapter, a spike in 2012 catches our attention only to be consumed in coming years. Meanwhile EA has generated a rather steady flow of influx.

By contrast, EA suffers from lack of employee morale. In previous chapters, the author mentioned a story written by a whistleblower who gave us a snap picture of the company at work. Lack of moral may not be evident in financial statements, but it is occurring beneath the surface, preventing companies from taking advantage of their full potential.

Another source of equally important weakness for both of these companies is their aggressive approach to mergers and acquisitions. Both of these companies have exhibited a pattern of purchases and adding external franchise when they are deemed relevant for their business. One of the basic company valuation concepts warns the corporate world not to rely too much on mergers (Koller, 2005). The author recognizes the arguments made against this case. If enough industry leaders and other players in the market follow a practice, it ceases to be unwise and will be normalized. This normalization happens regardless of theoretical or academic inconsistencies.

Another weakness presented in Appendix V is excessive equity. While this practice can be considered safe from an investor's perspective, it is costly to expand the company on the basis of equity rather than debt. (Koller, 2005) Equity has an indirect cost, which signals to the market, which could deteriorate the company's value, but it has an immediate impact. A debit is only burdened by its cash outflow and often managerial costs regarding another signal to the market. To counter this, Electronic Arts has a policy of not paying any dividends. Electronic Arts has never paid their investors and according to their latest annual report of 2016, it is unlikely to pay any dividends in the "foreseeable future". The plowback of money is very good for the value of the company. While it is important not to leverage a company beyond the point of no return, it is also crucial not to burden the company with excessive debt.

6.2 Organizational Structure

This section is solely focused on the organizational structure of the two companies and what the implications of differences amongst the two are. An "organizational structure defines how activities such as task allocations, coordination and supervision are directed towards the achievement of organizational aim" (Pugh, 2007).

6.2.1 Electronic Arts

Typically, the organizational structure can be based upon the functionality of departments (as is the case with Siemens) or it can be based upon geographical locations and then a sub-hierarchy of functional divisions. The companies will usually pick the structure that is most suitable to their core value generation drivers. Gargantuan multinational companies usually opt for a combination of these two structures, which can be less efficient, as an additional middle manager will be added for further control of the processes. There are various suitable methods including Matrix structure for giant conglomerates such as EA. Earlier in the introduction we mentioned that EA underwent a massive overhaul and has created "labels" for their products. Underneath each label, business units are strategically dispersed throughout the world and the North American continent. There are two distinct labels: EA games and EA sports. Under EA games label the following divisions are held: EA Los Angeles, EA Montreal, EA Black Box, EA Phenomic, DICE, Criterion Games, and Visceral Games. All of the abovementioned have independent marketing, design, managerial and accounting departments. The second label is EA Sports. Much like the EA games, it holds several autonomous departments under its label.

There is a third, less-known, administrative label which is composed of two divisions at the top of this conglomerate - "Central Development Services" and "Global Publishing". Both of these are responsible for creating a general direction for the company and a more centralized control over the labels. The Global Publishing label has given specific mandate for strategic planning, field marketing, sales and distribution in Asia, Europe, Latin America and North America.

This structure cannot be found in any textbook as it is tailored to EA's needs, but the structure follows central guidelines with autonomous departments.

6.2.2 Activision Blizzard

Activision grew from a small startup in the field and carved its way into the world of multinational giants. They still carry their heritage from their previous years. Activision has more centralized corporate governance in comparison to EA. Under the office of CEO, departments are organized according to their functionality with departments such as customer relations, legal, strategy, marketing, etc. All these departments are responsible for performing their respective tasks on aggregate level. Thus, it can be categorized as a tall pyramid. Only some of the departments are geographically dispersed throughout the world. Otherwise the departments follow the strategy guidelines with less autonomy.

It is important to mention that EA is an older company and is dealing with more products than Activision.

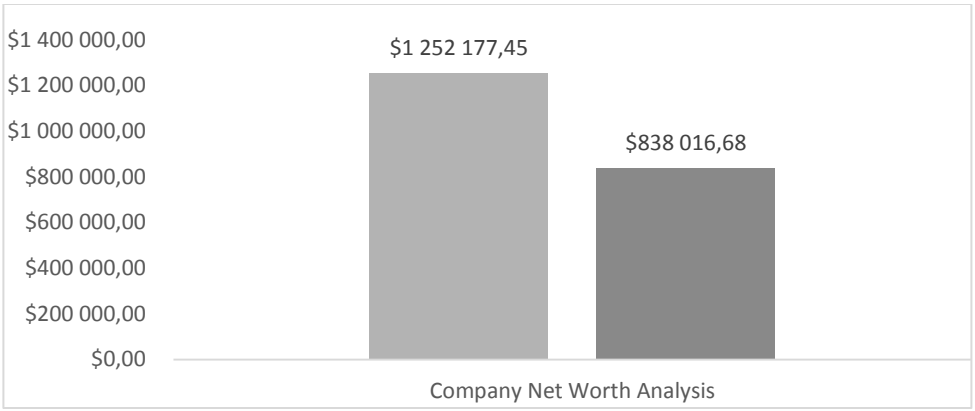
6.3 Financial Analysis

In this section we will analyze both of these companies' internal policies. Financial analyses of both of these companies are based on their consolidated financial statements published in their annual reports.

6.3.1 Net Worth Analysis

The calculation method for enterprise value is subject to accounting and financial practices; practices about which experts often disagree. The author has presented the net worth tables in Appendix III. The figure below summarizes the net worth of these companies.

Figure 4: Company net worth (EA left, Activision right, Millions, USD)



Source: Author's calculations

Each method has its own advantages and drawbacks. Thus, the author has presented the method average in figure four. According to the numbers calculated, EA has a better stand on the net worth compared to Activision. The author will note that Activision is undertaking massive investment projects and EA is just about to offer its new blockbuster product to the market in 2017.

6.3.2 Overall Financial Indicators

In this subsection the author concludes his findings based on hard data which is presented in Appendix VI of this document. The majority of this section is based on ratios, which are reflective of income or balance sheet items.

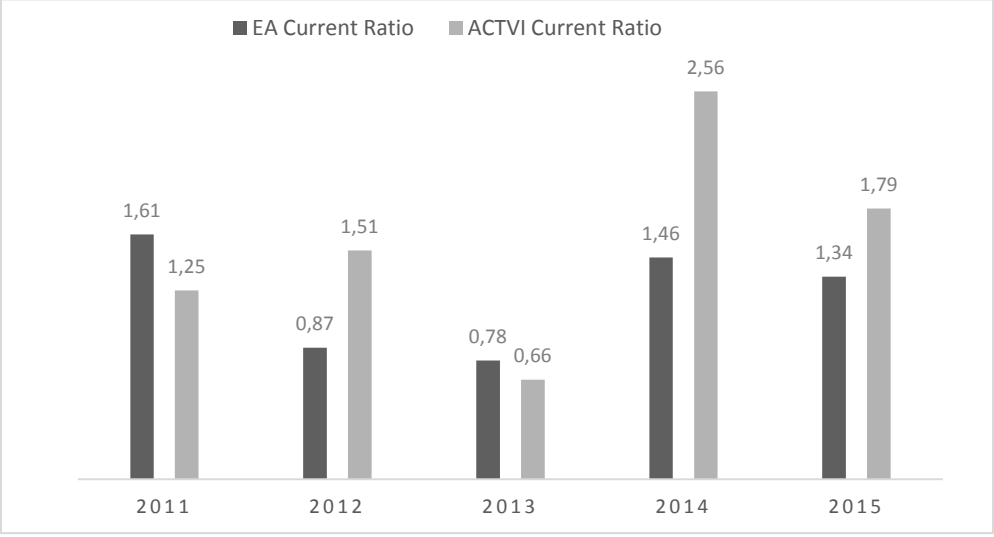
6.3.2.1 Liquidity Ratios

These ratios are very popular in financial industries. The concept behind this ratio is whether a company's short-term assets (cash, cash equivalence, marketable securities, receivables and inventory) are readily available to pay off its short-term liabilities (notes payable, current portion of term debt, payables, accrued expenses, and taxes).

6.3.2.2 Current Ratio

The ratio is calculated by using 'current assets/current liabilities'. The higher the ratio the better it is for the company. It implies higher assets to offset the company's short term debt.

Figure 5: Current Ratio



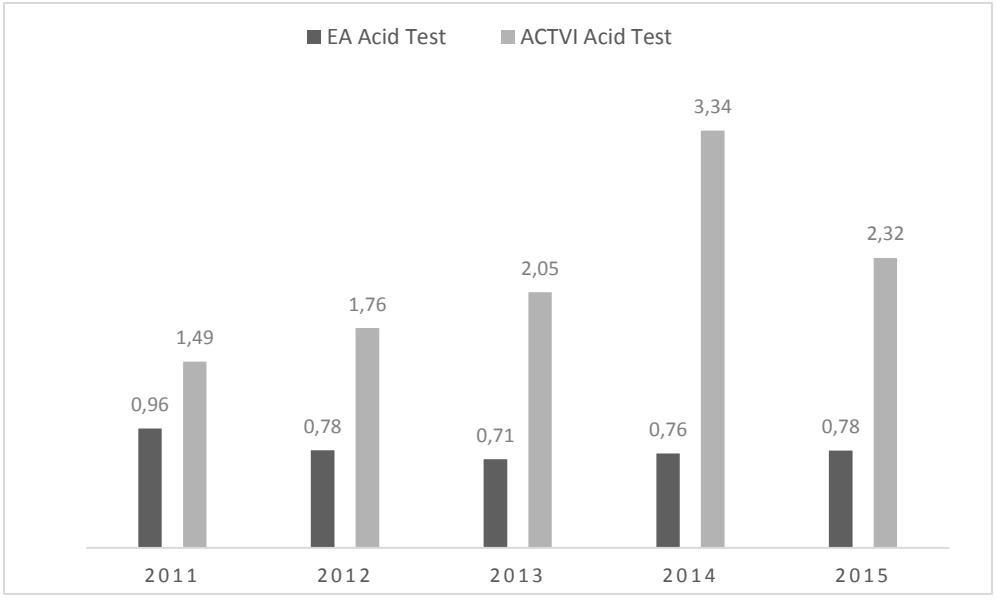
Source: Author's Calculations

As we can see in the figure above, EA has managed to keep their liability down which is good news for their investors. Furthermore, we see a decrease in 2012-2013 which was due to investments in their hardware and in two years it began to pay off. The author would like to point out that EA has managed to keep their current ratio relatively stable. The picture is significantly different when we look at Activision's performance. In year 2014, their liabilities exceeded their assets. It is not a particularly alarming feature of this industry. The author acknowledges that such massive spikes in their current ratio may cause instability to their cash flow. In 2015 Activision had 1.79 assets over their liabilities, while EA had almost twice over their current liability which makes them attractive for investments.

6.3.2.3 Acid Test

The quick ratio sometimes referred to as acid test is a liquidity indicator that further refines the current ratio by measuring the amount of the most liquid current assets which are used to cover current liabilities. The quick ratio is more conservative than the current ratio, because it excludes inventory and other current assets, which are more difficult to be sold and turned into cash. It is defined as 'cash + cash equivalents +short term investments + accounts receivable / current liability'. As this ratio gets bigger, companies become more liquid.

Figure 6: Acid Test



Source: Author's calculations

As is clearly reflected on, EA is obviously a company that is in long term and often illiquid assets, which makes it more susceptive to shocks. By contrast, Activision is a company with twice as many liquid assets than current assets, which makes this company more stable in shocks.

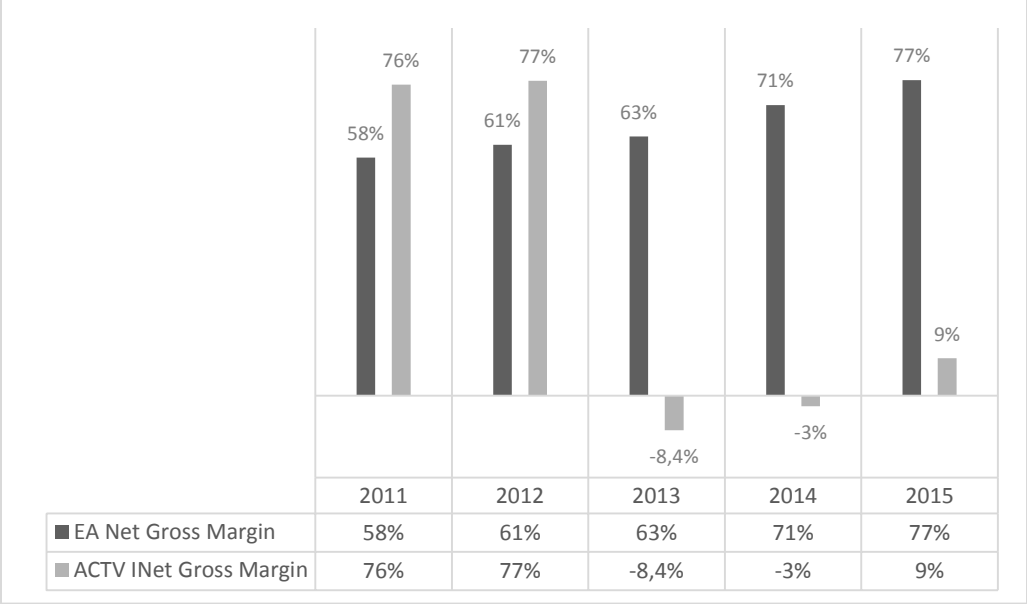
6.3.3 Profitability Indicators

The following section of this report discusses the different measure of corporate profitability and financial performance. These ratios provide a good understanding of how well the company is utilizing its resources in generating profit and shareholder value. The long term profitability of a company is a vital component here.

6.3.3.1 Net Profit Margin

In the consolidated income statement, there are four levels of profit or profit margins. These include gross profit, operating profit, pretax profit and net profit. Profit margin analysis uses the percentage calculation to provide a measure of a company's profitability on a historical basis and in comparison to peer companies and industry benchmarks.

Figure 7: Profit Margin

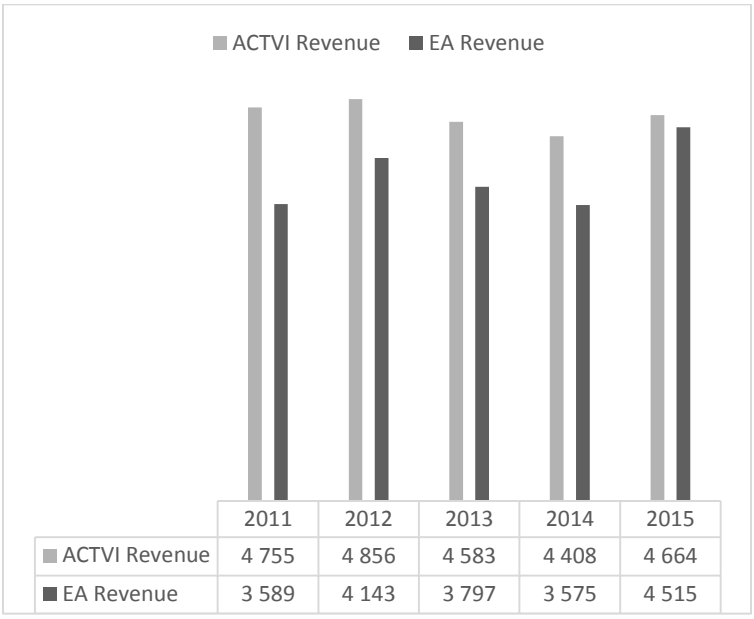


Source: Author's calculations

The author presents two separate calculations of "Operating Margin" which is derived from operating profit / net sales. This ratio gives a clear picture of the companies' profit generated by the operating side of the company and not the financial investments. As our companies are operating in

the IT industry, they both have reasonably little incentive to invest in financial assets. EA has generated a steady stream of income which is a process useful for the investors while Activision is quite different. We see a steady stream that suddenly hammered down to negative values. The author argues that Activision's rate of recovery has been slow, which could cost the company in the long run.

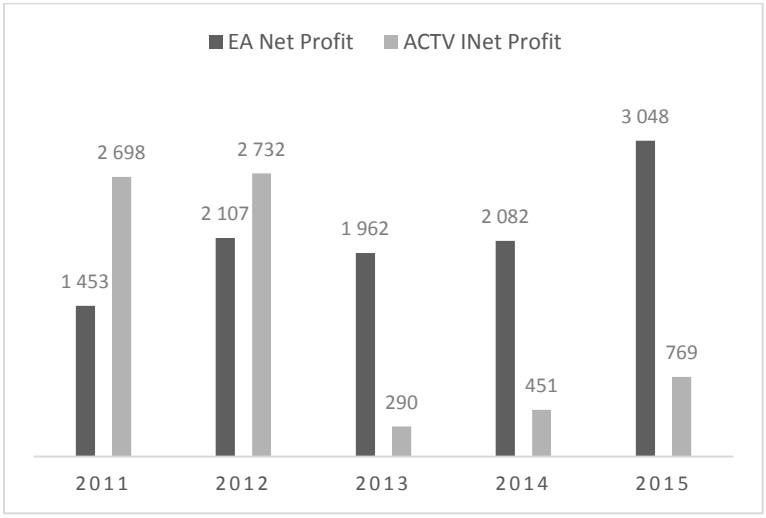
Figure 8: Revenues (In millions, USD)



	2011	2012	2013	2014	2015
ACTVI Revenue	4 755	4 856	4 583	4 408	4 664
EA Revenue	3 589	4 143	3 797	3 575	4 515

Source: Author's calculations

Figure 9: Comparison Net Profit (In millions, USD)



Source: Author's calculations

The author would like to direct the attention to the Net profit and revenues. It is clear that Activision is a profitable company overall, but when we consider Net profit, which is profit after taxes; we realize that it might be the lack of company's tax evasion that caused this massive difference. As we mentioned before, Activision is subject to various tax jurisdictions, both in the United States and in Europe, while EA is primarily American-based. While it does have various offices and studios across the globe, it is subject to one tax code; creating a more effective and unified tax evasion effort.

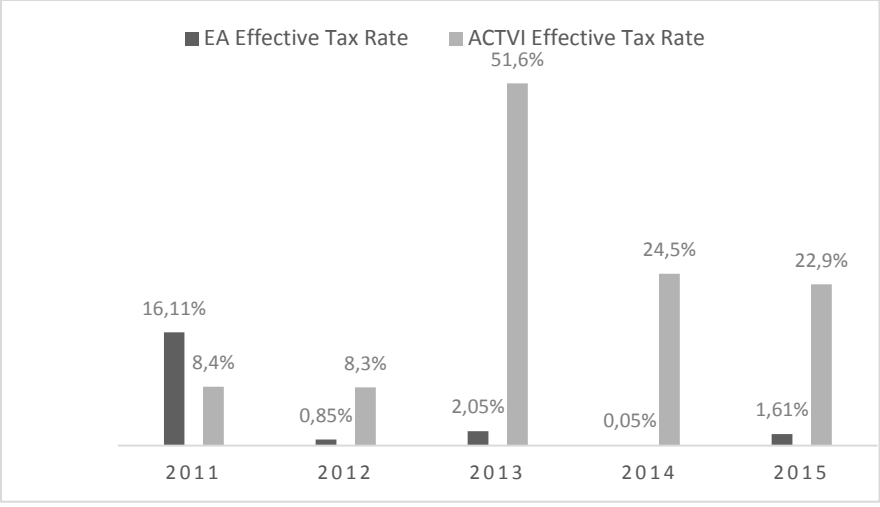
6.3.3.2 Net Profit

The second measure used was the net profit. This margin captures the portion of the sales in the firms' total income. We can see an increase, as illustrated in figure 9 for EA, which is commendable, however, we will discuss in the following sections that this increase is not solely reliant on competitive marketing techniques and cutting edge innovations which are attributed to EA. It is also not solely due to good tax evasion policy.

Effective Tax Rate

This ratio is a measurement of the company's tax rate, which is calculated by comparing its income tax expense to its pretax income. This amount will often differ from the company's stated jurisdictional rate due to many accounting factors, including foreign exchange provisions. This effective tax rate gives a food understanding of the tax the company faces.

Figure 10: Effective tax rates



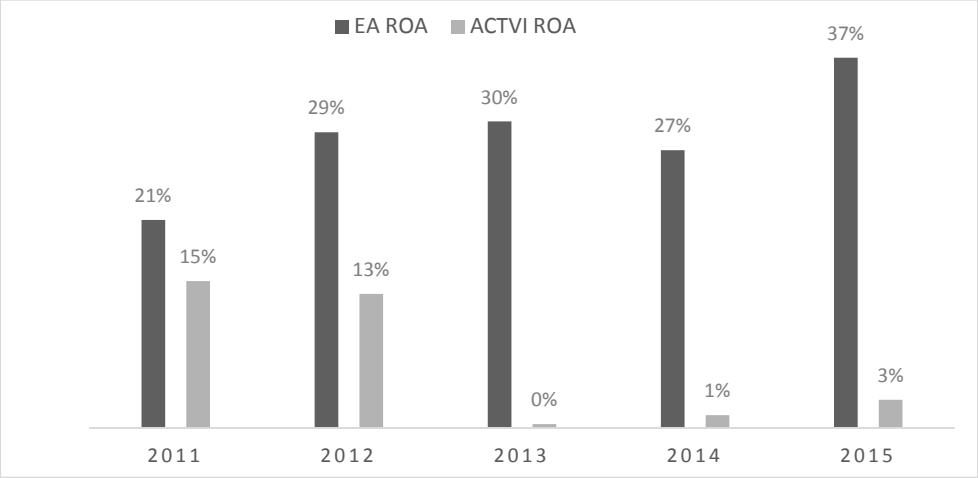
Source: Author's calculations

As the author concluded earlier, EA benefits from a good tax strategy. EA's effective tax rate is far lower than Activision's paid amount. It is important to point out that EA had a downsizing which took place in 2011. The second reason is increase in liabilities which has shown an increase from 2011 onwards.

6.3.3.3 Return on Assets

This is a very standard ratio calculated worldwide in an effort to understand how much of the returns are captured by assets. It is very simple to calculate as Net income / total assets.

Figure 11: Return on Assets



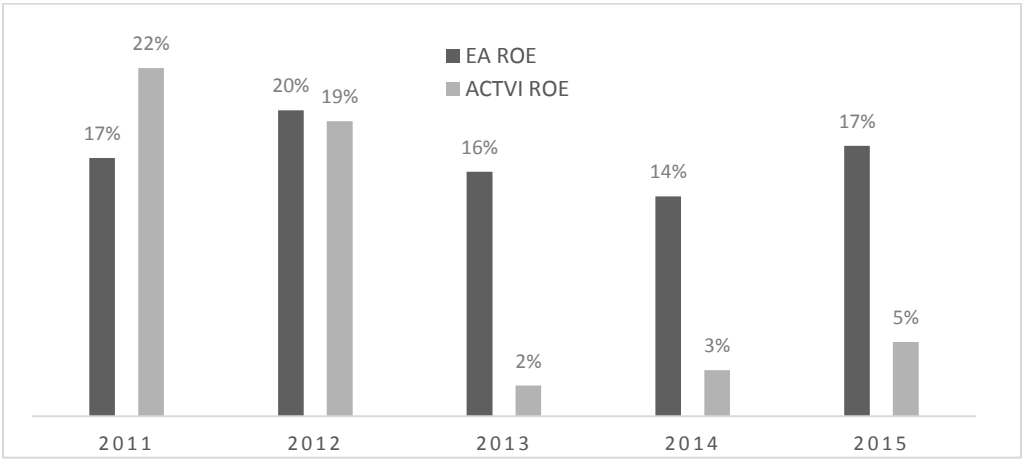
Source: Author's calculations.

ROA shows how efficiently a company uses its resources and more specifically assets. In this case the author is unable to make a clear judgment. Activision had a massive drop in its net profit and rocketed taxes. While this might be a direct effort, the author argues that the drop was massive enough to hammer this ratio down for Activision. EA has shown very little volatility and growth on average compared to the competitor benchmark.

Return on Equity

This ratio illustrates how much the shareholder managed to take from the company's overall performance. It is a simple calculation of Net Profit / Total Equity.

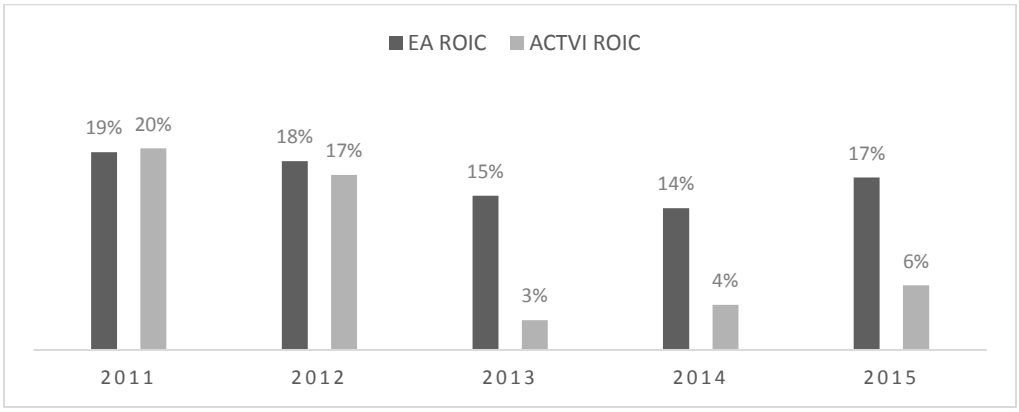
Figure 12: Return on Equity



Source: Author's calculations

We can clearly see that EA had returns on equity of 17% in 2015 while Activision had only 5% in the same time interval. We observe the pattern yet again. EA generates more stable indicators while Activision fluctuates over time. The author will acknowledge that both of these numbers are consistent with their company's respective targets and for conglomerates of their size. It might arouse some suspicion that 15% return may be over exaggerated. The author will present the return on invested capital ratio which validates the answer above.

Figure 13: Return on Invested Capital



Source: Author's calculations

ROIC is a useful indicator for the financial analysis. While numbers are different, the trend is fairly visible. The author concludes that Return on Equity has been high for shareholders of EA. EA's overall gains are reflected in the company's overall value. This measure is best used against the

weighted average cost of capital (WACC). Here, the author is facing a dilemma. EA is historically a company that does not hand out dividends, while Activision distributes this money on yearly basis. While it might not appear as a motivation factor for investors, the author argues that reinvestment of dividend into the company is often more proffered by institutional investors that will value their portfolio by enterprise value, not the amount of dividends paid. Many investors prefer to have this type of corporate strategy while others might prefer a model used by Activision. Activision has lower share price and high number of shares and gives dividends on consecutive basis. This might be seen as a strain on the company for the institutional investors.

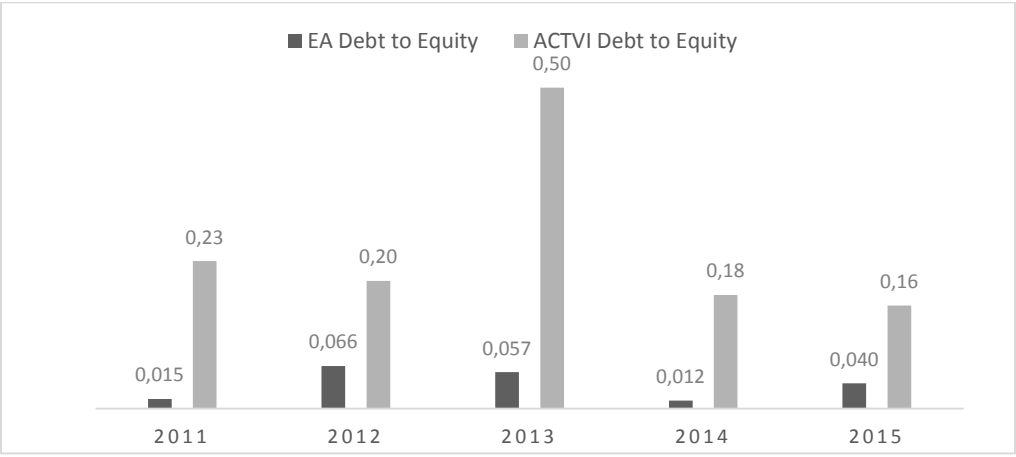
Calculation of WACC requires several components, one of which is the dividend payout. As we have discussed earlier, EA does not pay any dividends. Measurement of WACC can be calculated in a number of ways depending on the standard being employed. In this case, company's WACC against ROIC would not be valid as it is not an apt comparison. The author deems it to be a false equivalency and rejects its results on principle.

6.3.4 Debt Ratios

6.3.4.1 Debt to Equity Ratio

The ratio indicates the amount of debt divided by the equity as one would suspect. This ratio gives an insight into the company's leverage. This measure states how much the creditors are willing to provide credit and in turn, how much the shareholders are willing to commit to this company.

Figure 14: Debt to Equity



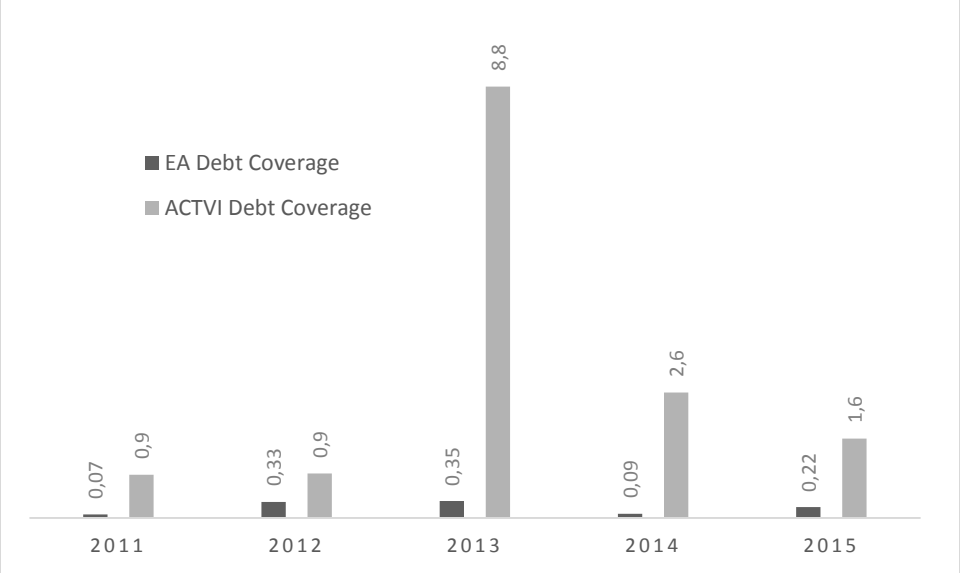
Source: Author's calculations

Here we observe another difference in the corporate governance of the two companies. As discussed earlier in the Internal Factor Evaluation Matrix, EA is more comfortable with equity rather than debt. In the occasion when EA increases its debt obligations, it is always raised via debt instrument that is convertible to equity. On five year average, EA's gearing was two percent (2%) which is very small compared to its rival which is 19%. This gives a very good signal to the investor that EA is usually looking inwards for additional finds but it is not without its drawbacks. This is another instance when the meanings of the financial ratios are being twisted by corporate strategy.

6.3.4.2 Debt Cover Ratio

Another important ratio under the heading of debt is debt ratio or debt service coverage which is calculated as EBITDA/Net Debt. The ratio is a popular benchmark used in the measurement of an entity's ability to produce enough cash to cover its debt (including lease) payments.

Figure 15: Debt Coverage



Source: Author's calculations

The interpretation of this ratio for this industry is tricky. Conventional wisdom holds that the higher this ratio, the easier it is for company to obtain a loan. (David, 2009), while in reality, a company like EA is very conservative when it comes to debt and debt service. They prefer to have it converted to stocks. Therefore, their ratio is very close to zero while Activision shows a significantly higher rate when compared to EA.

6.3.4.3 Interest Coverage Ratio

In this part we will analyze how easy it is for both of these companies to pay their respective debts. As mentioned before, the two companies work in a constantly evolving environment with higher amounts of uncertainty. Appendix VI documents the findings regarding this matter. Both of these companies are very capable of paying their debts. The author, however, would argue that EA is highly unlikely to take on debt, due to its conservative attitude towards it.

6.3.4.4 Cash Flow to Debt Ratio

When comparing the company's level of debt to other performance measures, one of the most widely used ratios is cash glow to debt which includes Operating cash flow / total debt. This ratio gives a picture of whether the company is able to pay back all of its debt using current yearly cash flow which is a rational expectation for creditors.

Table 1: Cash Flow to Debt Ratio

	2013	2014	2015
Cash flow to debt Ratio, Activision	45%	-144%	7%
Cash flow to debt Ratio, EA	75%	44%	40%

Source: Author's calculations

Here we can see that EA was able to repay to 40% of its obligations in 2015 while Activision was able repay only 7%. It is important to mention that Activision's 2014 net cash was the source of the negative value in the table above. This number (7%) stands out from the rest of its previous years. Although this anomaly might appear to be a relatively small number when compared to a conservative company such as EA, it is still considered very good for the fluctuations that this company has endured, especially considering the deflationary pressures incumbent in Europe during the timeline presented in the table above.

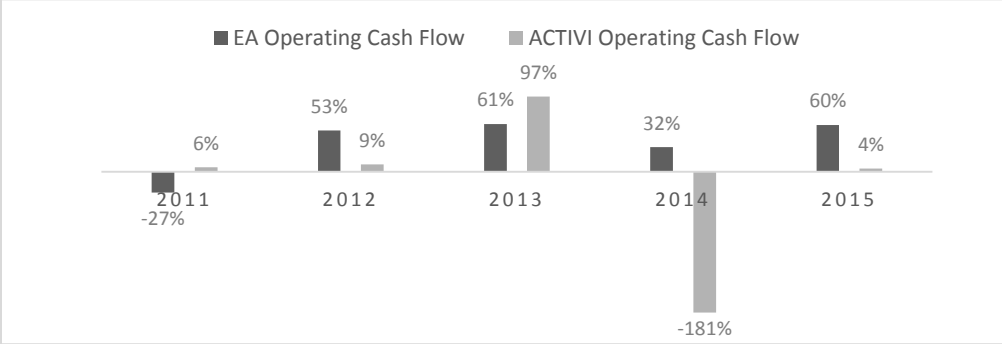
6.3.5 Cash Flow Indicators

This section analyzes cash flow indicators, which focus on the cash being generated in conjunction with operations and, furthermore, the safety net that it provides for the company. These ratios can give researchers another window into the companies' financial wellbeing and overall performance.

6.3.5.1 Operating Cash Flow

This ratio which is expressed as a percentage compares a company's operating cash flow to its net sales which gives investors an idea of the company's ability to turn sales into cash. Positive and negative changes in the company's terms of sales and/or the collection of experience of its accounts receivable will show up in this indicator. It is calculated as operating cash flow / net sales. The author acknowledges that the item used for calculation is revenue. This is due to necessity, as neither of these companies reports their respective net sales specifically.

Figure 16: Operating Cash Flow



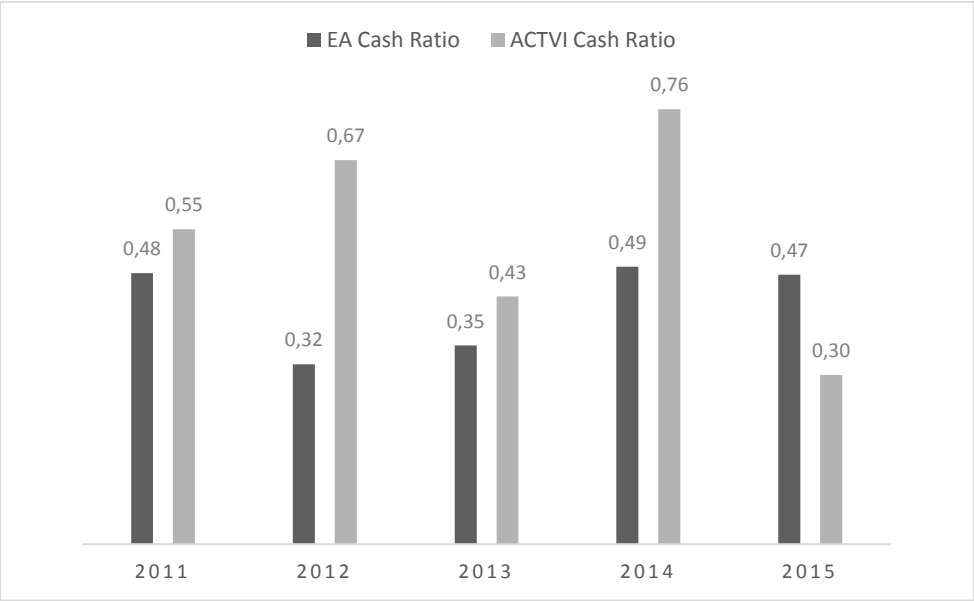
Source: Author's calculations

The illustration gives a clear picture that in 2015; EA had more opportunities to turn sales into cash. It is important to recognize that the negative value does not correspond with the company's inability to turn sales into cash, but rather cash outflow for a wide variety of reasons, some of which have been discussed previously, such as taxes levied, dividend outflow and debt obligations. Thus far the author has provided evidence of Activisions's lack of providing positive ROA and tax evasion techniques, which caused their cash flow to be significantly negative and placed the company in a predicament.

6.3.5.2 Cash Coverage

Although this ratio has little to do with operating cash flow, it is still important to mention it and see if the company is liquid enough in comparison with their level of debt.

Figure 17: Cash Ratio



Source: Author's calculations

We can see that EA held enough cash and cash equivalent to cover approximately half of their liabilities in 2015. The growth in general trend of EA is a good sign for creditors. EA can cover half of its liabilities with cash. As mentioned before, EA's conservative approach to raising money is reflected in the figure above. Activision shows signs of volatility which confirms the author's earlier suspicion that the company is more liquid. EA has shown more stability in regards to financial indicators which is more appetizing to its investors.

6.3.6 Volatility of Stocks

In this section, the author will analyze the volatility of stocks for both of the companies indicated earlier.

The author will include several models to uncover measures which will be discussed in upcoming subchapters. The data used in this section is the publicly available adjust close (Adj Close) stock price on exchange. The methodology, testing and immediate model are included but are not presented in main text. The mentioned topics are included in Appendix VII of this document. The author specifically chose not to include any figure after May 2016. This month was the official mark of the beginning of the presidential election cycle which was highly volatile, given the nature of the campaigns. Any figures after the election will anticipate a tax cut, the hallmark of the Republican

ideology, as the party took control of all branches of the United States federal government. Anticipation of a corporate tax cut had a soft effect on stock prices. This effect would have been captured by VAR model and will taint the purpose of this study. This range could have been used for TARCH and GARCH modeling, but the author opted out for the sake of uniformity.

6.3.6.1 GARCH Modeling

In this subsection, the author will analyze volatility with its closest proxy of an asset's risk. According to the Capital Asset Pricing Model, we can anticipate the presence of a strong relationship between risk and expected return of a stock. Therefore, predicting volatility is very important for investors. The second part of this analysis will employ forecasting of mean (average) use Vector Auto Regression.

The pain purpose of this section is to model the volatility of Electronic Arts, which is the historical stock price of Electronic Arts during 1990-2016. The author will analyze volatility and its predictability. In particular, we are interested in finding the best method for modeling the volatility of prices.

The mechanics of Generalized Heteroscedastic Auto Regressive (GARCH), including methodology and detailed resulted, are documented in Appendix VII. Even though the evidence was not strongly in favor of fitting the ARIMA and GARCH family (implying weak GARCH effect), we estimated the model and the results are as follows.

All the parameters that influence the volatility of our stock are statistically significant. The long term variance does not influence the volatility significantly. An estimate for a change in variable alpha one is 0.35. And the estimate for previous forecast for beta one is almost twice as powerful with a coefficient of 0.85. When we add up these two coefficients, the result is less than one which is an indication of reverting variance process. (Unconditional error variance = 0.00414924).

In order to capture the leverage effect in our dataset we proceed further to TARCH (1,1) (Zakoian & Rabemananjara, 1993)

Unlike our analysis in GARCH (1,1) the coefficient estimate for the constant (omega) is not close to zero, however, in TARCH (1,1) we can see that the previous period volatility is slightly larger than in the GARCH model. The coefficient estimate of Gama is different from zero and is significant, which indicates the presence of the asymmetry effect and volatility being affected

considerably by negative shocks. It is prudent to mention that despite the significance of asymmetry, it does not explain the volatility in our data.

Another model that accounts for the asymmetric news effect is GJR-GARCH (Glosten, et al., 1993). The reasoning behind this model is such that bad news has higher impact than good news. We will use GJR-GARCH (1,1) in order to capture this effect. The result of this analysis is documented in Appendix VII. The obtained estimates from fitting GJR-GARCH (1,1) into our data are significant. It is important to note that much like TARCH, the omega (constant) is not significant. The asymmetry effect captured by gamma is positive but slightly lower than TARCH (1,1).

After comparing the GARCH family of models, the author concludes that GARCH (1,1) can explain the volatility of the stock returns. The author's conclusion is supported by the significance of all coefficients and given further confirmation by minimum information criterion generated by our estimations, which is lowest in case of GARCH (1,1)

Almost 60% of volatility of returns is explained by the previous forecast, while the other 40% is due to news impact. We use TARCH (1,1) and GJR-GARCH (1,1) to analyze the asymmetry effect. The coefficient estimates of asymmetry parameters in both models are significant and positive. This implies that bad news has higher impact than good news. Both TARCH and GJR-GARCH confirmed the presence of the leverage effect. However the leverage effect is not large, which is surprising for a company with Electronic Art's reputation.

6.3.6.2 VAR Analysis

Vector Auto Regression (VAR) is a data-driven model and the historical value of each variable plays a role in its future determinants. After performing a sensitivity analysis on a full sample and a restrictive sample, the author decided to use the restricted range; excluding the crisis years of IT bubble of 2000s, the subprime crisis of 2007 and economic recession of 2009. The new data set begins on 07.01.2011 and the last observation is 04.04.2016. The author did not take the first difference of data to avoid the loss of long term trends between the two variables. The results of the inverse roots are show distinct signs of stationarity. The inverse root is presented in Appendix VII.

We have chosen NASDAQ 100 index in connection with our company. EA is a fortune 500 company and enlisted on NASDAQ 100 stock index. Thus we conclude that these are relationships

between our index and our variable. Furthermore, there is a clear relationship in reverse. The company performance will contribute to the value of NASDAQ 100. It might be argued that our company is in absolute minority, but the author believes that it may still effect because Electronic Arts is an industry leader. Other companies closely follow its business model and, indeed, it was the EA business model that shaped the industry.

The VAR output is also documented in Appendix VII. VAR models are often used for forecasting, because they are good in predicting the mean. The ordering of data is critical when constructing VAR. Our first dependent variable is NASDAQ index and the second variable is the company stock. The result of the forecast is presented in Appendix VII. It is suggested that the company's stock prices will remain steady in the near future.

Another well-known feature of the VAR models is their impulse response function and analysis. According to our findings, if there is an exogenous shock to stock of the company, it will lose a significant portion of it in the first day and it bounces back to the original value assuming the shock is not persistent. Even after assuming a non-persistent shock, we observe little persistence on the fifth day. This is attributed to the initial volatility which will cause stock price to plummet at 0.014%. This suggests vulnerability of the company (see figure 28 of Appendix VII).

Electronic Art's persistence suggests a healthy and sound financial structure within the company.

It is often recommended that these measures be held in comparison to the industry average. The author has made various attempts to construct the data set for an apt, objective and fair comparison. The author has concluded that the company's main competitors hold a distinct advantage over EA. Nintendo, mentioned in earlier chapters, has its own hardware platform and the advantage of offering a supplementary good to their customers, enjoying a pool of captive consumers. Ubisoft is a French based software company that is holding its stocks in a foreign currency (Euro), which is considered adequate for this comparison. Activision is another fair and apt comparison for the purposes of this analysis. The other two remaining competitors of EA are Microsoft and Sony. Both of these giant conglomerates offer a wide variety of often complementary and supplementary products. Due to their wide variety of products, the stock prices are distorted by synergy created from other business divisions.

While the author has been able to identify other competitors worldwide, it is not recommended to pursue this analysis. An industry analysis cannot take a handful of companies into account while ignoring 76% of market share in total revenues. The author does not believe this analysis would hold any merit.

6.3.7 Crisis Management

This section is solely dedicated to understanding EA's underlying strategy in times of crisis during the Subprime mortgage crisis. As an S&P 100 company, EA is expected to have better insight into financial markets. The executives might have access to privileged information that is not accessible to the public. While this intriguing argument might be true, the author cannot confirm the existence of such information. The author has thus relied on the behavior of the company as recorded in written public statements. The author was presented a choice to study baseline operation of the company and its performance during the crisis or to study strategic managerial decisions. The author chose the former. The choice was made for the sake of consistency.

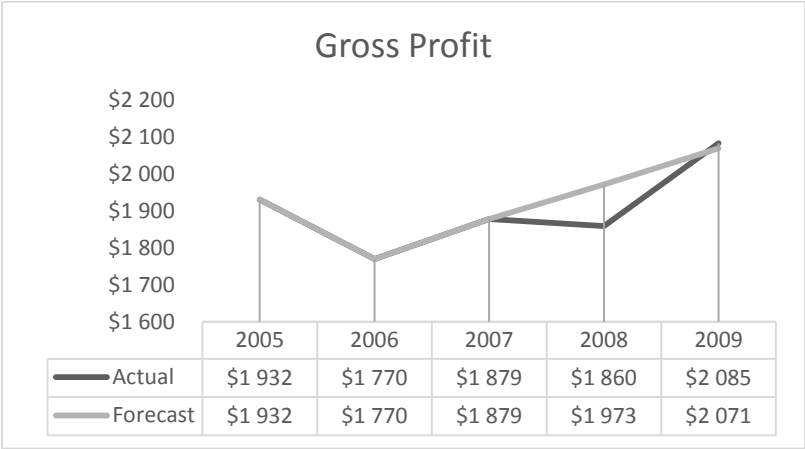
In this subsection, the author will use the discounted cash flow model to analyze the behavior of the firm during crisis. To do so, the author has created an artificial forecast for the year of 2008 and 2009. This forecast is generated by the previous three consecutive years (i.e. 2005, 2006, and 2007). The author has calculated the company's internal rate of growth which is presented in Appendix II. This growth rate is used to project the future consolidated balance sheet and statement of operations. The author will be able to provide a clear analysis with a certain degree of scientific certainty.

6.3.7.1 Statement of Operations (Income statement)

After a careful cross-examination of artificial statements with actual statements presented in Appendix IIX, the author has concluded the following.

Demand fell in the years following the Subprime crisis which hit middle income households that are major customers of EA. The income statement did not reflect this assertion completely.

Figure 18: Gross profit for 2008-09 (Millions USD)



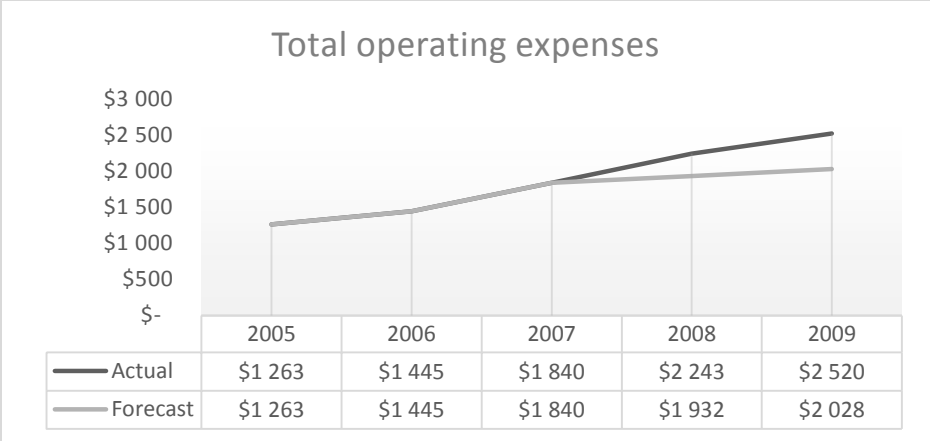
	2005	2006	2007	2008	2009
Actual	$1 932	$1 770	$1 879	$1 860	$2 085
Forecast	$1 932	$1 770	$1 879	$1 973	$2 071

Source: Author's calculations.

The table above represents the gross profit of the firm. The first three years were taken as presented in income statement with no alterations as a benchmark. The years following were taken as a comparison with its respective forecast. As expected, in the year following the subprime crisis gross profit fell down, but not significantly. More puzzlingly, the forecast and actual values converge in 2009. Upon further examination, the author concluded that the sufficient increase of the revenue component was the main reason for the trajectory of this graph.

During the same period, the company increased its expenditure size far beyond the projected values.

Figure 19: Total Operating expenses 2008-09 (Millions USD)



	2005	2006	2007	2008	2009
Actual	$1 263	$1 445	$1 840	$2 243	$2 520
Forecast	$1 263	$1 445	$1 840	$1 932	$2 028

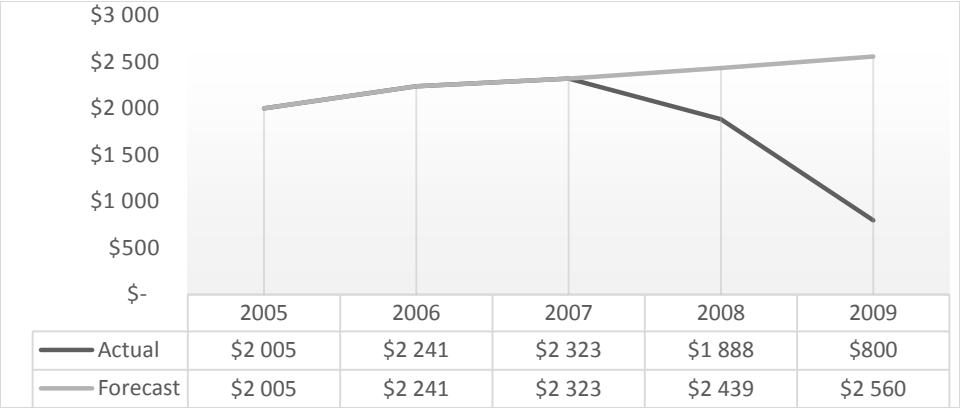
Source: Author's calculations

The company had a stagnating backlash on its income as they shrank below zero and operating income turned to loss.

6.3.7.2 Balance Sheet

In this subsection, the author will conduct the same analysis for the company's balance sheet. As expected, the loss in revenue took its toll on retained earnings. While it was still above zero, it took a massive downturn following the events of the subprime mortgage crisis, departing from its stable trend.

Figure 20: Retained Earnings 2008-2009 (Millions USD)



	2005	2006	2007	2008	2009
Actual	$2 005	$2 241	$2 323	$1 888	$800
Forecast	$2 005	$2 241	$2 323	$2 439	$2 560

Source: Author's calculations.

While indicators fall to alarmingly low levels, it does not affect the company's bottom line. Upon further investigation of the balance sheet, the author has uncovered additional entries that were previously unmentioned. An entry dedicated to "Income tax obligations" which was added in 2008, and another entry "Acquisition related intangibles". The company's liabilities increased in 2007 by acquiring VG holding group and its subsidiaries. It was reported in USA Today (Wong, 2007) that EA had its largest acquisition of the year, which was later confirmed by their 2008 and 2009 reports. The company did take a massive hit, but the source was not a lack of sales or lack of demand; it was due to their internal decisions to acquire a large holding to take advantage of low cost of borrowing at the time.

Interactive software still remains a luxury good, as its primary function is to entertain. Seeing that the figures did not reflect the crisis as it was reported creates an enigma for the author which will be addressed in conclusion of this thesis.

6.4 Internal Factor Evaluation

"This strategy-formulation tool summarizes and evaluates the major strengths and weaknesses in the functional areas of a business, and it also provides a basis for identifying and evaluating relationships among those areas" (David, 2009)

In this section, the author will use a previously obtained SWOT matrix and attempt to establish a relationship between strengths and weaknesses. As discussed previously, EA has a strong financial position which can be attributed their conservative approach towards debt. This strong financial position can compensate and, eventually, overturn their possible decline in net worth observed in historical stock market data.

EA's diverse profile of products and industry position can compensate for their limited hardware capabilities until such a time when the company takes a massive overhaul of their hardware structure. This change took place in 2017 using their new "Frost Bite" engine.

While the company's independence of music and visual studios are considered an advantage, EA's greatest threat will come from vital dependency on licensing its products.

A diverse profile of employees is often an advantage of a large corporation, but in the case of EA, it is combined with massive tasks carried out by business units which may create tension in the work place. EA needs to address this issue and make a firm stance for its employees.

A strong R&D position, market dominance and industry leadership all put EA on a pedestal of incredible opportunity. The author believes this strength is greatly overshadowed by the company's lack of intrinsic growth and turning to outside franchises for growth.

As for external environment, environmental regulations and movements to heavily regulate the industry are profound compared to the previous years. The author is convinced that the most significant threat coming from external environment is digital piracy. This issue needs to be tackled on a national level. Electronic Arts and similar companies will suffer consequences unless they find sophisticated means by which they could increase the encryption of their products.

6.5 Space Matrix

This is a great four by four matrix to determine the exact location of the company in response to its competitors and market at large. "The axes of Space Matrix represent two internal dimensions (Financial Position [FP] and competitive position [CP]) and two external dimensions (stability position [SP] and industry position [IP]). (David, 2009) Appendix IX documents the space matrix in great detail.

Though this matrix is very subjective in construction, the author has created a framework based on the findings presented in earlier chapters. The author has placed higher emphasis on financial indicators.

The space matrix has four dimensions. When it comes to the company's overall policy, the company can be "conservative", characterized by inward growth, market penetration, and product development. While EA has shown a conservative pattern in regards to debt, it is relatively small compared to the other side (M&A) of the matrix.

A company may be "defensive", characterized by retrenchment, divesture and liquidation. So far, no financial or managerial metric has suggested this pattern in EA.

A company may be "Aggressive", by the use of integration (backward, forward, and horizontal), market penetration, product development and divesture. While EA does not engage in unrelated diversification, its behavior is very typical of an aggressive company. It's great mergers and acquisitions are textbook examples of horizontal integration, aimed at gaining a stronger industry position and external growth.

Another measure in the matrix is "Competitive", which is characterized by the same measures as "Aggressive". The key difference is that such activities have greater emphasis on stability and internal growth. EA's corporate behavior does resemble and scores high on the "SP" metric explained earlier; the behavior observed is too aggressive. This aggressiveness is so high that it overshadows the majority of their competitive behavior.

Hence the author concludes that EA is an aggressive company with focus on external growth, trying to distinguish itself in industry positioning while placing explicit emphasis on growth and taking out competitive forces.

6.6 Value generation

EA is among the IT industry incumbents, a software creation company which focus on interactive and entertainment software development. "The [nature of] IT industry is inherently a creative industry in which value generation comes from actually creating something new." (Spitzer, 2010). Eliot Spitzer, the former governor of New York said in the sentence above what many textbooks explain in chapters. In the case of EA, the value generation comes from meeting the demands and building up on the progress which the company has made in the previous years.

Due to piracy and other inherent challenges in IT industry, EA has turned to unorthodox methods at times, such as investing in its online servers, and trying to offer their products via internet simultaneously or to have increased spending on development of mobile apps, specifically intended for smartphones. This reduces one burden and replaced it with another. Now EA is also dependent on internet providing companies and on its latest trends, smart phone developers and their respective operating systems. The 2015 and 2016 reports clearly signal the actions taken to increase their investments and increase their presence in the market.

When it comes to value generation, EA has exhibited behavior of absorbing successful companies into its nest via acquisition. The strategy has a long history and now is considered a typical norm of the industry.

While the value creation is not obvious enough in the case of an acquisition (Shleifer & Vishny, 1988), it does attract a lot of investors. It also prevents risk to a certain extent by cherry picking the success EA is looking for in their portfolio.

6.7 Brand Strategy

Like any company, EA puts a lot of effort in terms of labor and financial resources into their image. EA's core of business is mostly dependent on the intellectual property that is highly correlated to copyright laws. These rights are either explicitly or practically not enforced by every country, which places such companies at a disadvantage.

EA has placed a lot of effort in customer loyalty and, in a sense, legacy when it comes to sports and sport management simulations. The only name that offers a valuable product is EA's long standing divisions - EA Sports. Regardless of customer sentiment, the company legacy resonates with their type of simulations. EA also own one of the largest franchises through its Bioware under EA Montréal. This department is also another one of the names that brings massive customer loyalty to the mix. There are more examples of such franchises purchased, nurtured and coalesce with the name Electronic Arts brand. For more examples refer to Appendix XI.

EA's brand was recently tarnished with a slew of criticism in their joint venture with Disney. The author will acknowledge the conflict is ongoing and is unable to comment on specifics.

As the company has a lot of intangible assets, EA also has a very large legal department that is often too aggressive. EA's main brand strategy is typical for the industry - observation of the market for successful developers to offer an acquisition deal and their company.

7 Conclusion

In the final chapter, the author will conclude and reconcile his finds with his own interpretation of the strategy of Electronic Arts. They author analyzed a case study of a widely known interactive software developer with its primary focus on middle class consumers. The company has strengths and weakness as brought forth in this thesis. The analysis began with a history and origins of the company that started its pursuit as a union of artists and its evolution into the corporate world.

We have touched every single aspect of the managerial metric that could be quantified. The author has found the environment of interactive development companies engaged. It is highly supplier-driven (hardware) and customer-driver on the other side. Companies do have the luxury of choosing a specific corporate strategy, but rather observing the market and adjust accordingly. As software developers, EA has a mandate to meet the demands of its young customers on every turn and it must outperform its previous milestone while maintaining a competitive position in the market. The industry behaves in rather an odd fashion. While many academic texts openly discourage mergers and acquisitions as mentioned by David 2009or consider them to be tricky at times and harmful to the stocks and shareholders (Koller, et al., 2005), it's a practice widely used in this niche of the IT industry.

As for the managerial perspective, the company has performed under a long termed strategy that has been carried out by various CEOs. EA has number of challenges ahead from regulators, activists and the public at large. Thus far the company has been able to tackle those issues with the help of its large legal team or public relations department. The company has some hostile, negative publicity from various sources that has been pointed out by the author. While there is no "one size fits all" solution when it comes to management, EA has shown their aggressive business model works best and many companies such as Activision, which was used for benchmarking in parts of this thesis, have been adopting this strategy. EA is an extremely aggressive company when it comes to market strategy.

As for financial indicators, we see a vivid and distinct pattern. The company exhibits a very conservative approach when it comes to matters relating to debt. The dislike of debt causes the company to keep very low levels of (convertible) debt. While the company has a large base of cash and cash equivalence, it has never paid any dividends and according to their 2016 reports, it is highly

unlikely that the company will pay any dividends in the foreseeable future. The decision to plow back will create additional value for the company to increase its retained earnings. While the shock waves of economic cycle have shown no discrimination, EA has managed to combat the shocks with generating stable growing cash flow to the firm. EA is also in a unique position to perform cross-company subsidization to its underlings.

The author is puzzled by the strategic decision of EA during the crisis of 2007. It is safe to assume that the executives at EA had access to privileged information and could have drawn the same conclusions that in a time where costs of capital had been at historic low (effectively zero), many companies would engage in litigations and growth. All these events and other economic indicators have point out to the emergence of bubble(s) in the economy. While EA decided to proceed with their intention of aggressive growth via acquisition, the company's financial stance was firm enough to withstand the crisis. The analysis of balance sheets reflects that executives either ignored the crisis by making an assumption of stable demand, or proceeded with their plans feeling confident of their market stance.

One of the key discoveries in the interactive software niche is that mergers and acquisitions had become a fixture in their business model. This can create an addiction to growth in the short run at the expense of survival in the long run. The conventional wisdom holds that this is not sustainable for long. EA has proved that it is not only sustainable. In fact it does not affect the company's future prospect negatively. The author does not believe that conventional wisdom has lost its merit to the modern market but, rather, that the entertainment industry with its industrial structure that was explained in detail in chapter four, creates a unique set of circumstances under which typical practices of the business can be bent.

A major part of this thesis was comprehending the volatility and combating the waves of economic turmoil. The author concludes that EA's conservative strategy towards debt in conjunction with not paying dividends and plowing back earnings is their sole driver of success in combating the 2009 economic recession. The company continued their business operations as usual regardless of economic performance. This judgment is made solely on the basis of looking at the company's publicly available books and reports. The executives were convinced that the company will jump over the recession and it was not far from the truth.

The company's financial positioning and policy has mostly defused the effect of economic cycles. It did not need to show any flexibility in its managerial behavior, because in the described industry, EA benefits from an almost monopoly-like position. Contrary to the author's expectations, the company does not focus solely on short-term profit generation but rather long- term, stable, growing cash flow to the business. The investors prefer this strategy because it creates and increased company value.

While the author does not agree with all the strategies employed by EA, the author acknowledges that the strategies undertaken are adequate to meet the demands of industry. The author does recommend a decrease in the use of equity. Equity has various costs associated with its creation that will create a signaling effect in the stock market. It might undermine the operations and halt business targets. The author stands in sharp contrast to those who are skeptical to acquisition with the evidence from an entire industry that capitalizes on acquisitions. High number acquisitions do not affect the company's bottom line. The sustainable growth generated under this system speaks for itself. One of the main criticisms that the author does make in regards to this company is their game strategy. Based on observation of our sample, the author concludes that the company is playing a contemporaneous game. The author believes the goal of the company should not be to outperform competitors but to outperform themselves.

7.1 Contributions

This thesis provides a clear insight into the interactive software industry. Such vigorous analysis has not been done before by the members of academia for this industry. The second contribution is uncovering that the success EA has in its field is more due to conservative strategy in raising capital. EA prefers equity over debt. This discovery stands in criticism of some within the academic community. Thirdly, this study mostly contributes to the literature on Merger and Acquisition. EA is a company with a long history of acquisitions. These actions have been criticized by many in the field of economics and finance. These actions were proven to make no change to the company's bottom line. Aggressive acquisition policy is not as toxic as the author initially perceived and it can be contributed to the special circumstances in the industry, but the author is convinced otherwise. Judging by the thirty-five years of successful operations as of 2018, the author reasons that this company is a clear example that mergers and acquisitions are a sustainable strategy for this industry.

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Appendix I: Competitive Profile Matrix

		Electronic Arts Inc.		Activision Blizzard Inc.	
Critical Factors	Weights	Rating	Score	Rating	Score
Advertising	0.05	3	0.15	3	0.15
Market Penetration	0.05	1	0.05	1	0.05
Customer Service	0.15	1	0.15	3	0.45
Store Locations	0	2	0	2	0
R&D	0.16	4	0.64	3	0.48
Employee Dedication	0.1	2	0.2	2	0.2
Operating Profit	0.1	4	0.4	4	0.4
Customer Loyalty	0.1	2	0.2	4	0.4
Market Share	0.05	2	0.1	3	0.15
Product Quality	0.12	2	0.24	2	0.24
Top Management	0.1	3	0.3	3	0.3
Price Competitiveness	0.02	3	0.06	2	0.04
TOTAL	**1**		**2.49**		**2.86**

Appendix II: EA Growth Rate

	2005	2006	2007
Income tax	$ 221	$ 147	$ 66
Net Income	$ 504	$ 236	$ 76
Effective Tax rate	12.94%	9.50%	4.22%
EBIT(1-tax rate)	1,708	1,548	1,564
Long-term debt	$ -	$ -	$ -
Shareholder´s equity	$ 3,498	$ 3,408	$ 4,032
Total capital			
Ratio			
Retention Rate (RR)	$ 1.00	$ 1.00	$ 1.00
ROIC	50%	47%	42%

Average RR	$ 0.33
Average ROIC	$ 0.15
Growth=RR*ROIC	0.049833036

Appendix III: Net worth Analysis

Electronic Arts Inc.	
Stockholders' Equity	$11,786.36
Net Income x 5	$1,299.84
(Share Price/EPS) x Net Income	$2,497,811.80
Number of Shares Outstanding x Share Price	$2,497,811.80
EA Method Average	$1,252,177.45

Activision Blizzard Inc.	
Stockholders' Equity	$17,181.59
Net Income x 5	$3,843.85
(Share Price/EPS) x Net Income	$358.05
Number of Shares Outstanding x Share Price	$3,330,683.24
Activision Method Average	$838,016.68

Appendix IV: External Evaluation Matrix.

Electronic Arts

Note: Rating 1 is major weakness, Rating 2 is minor weakness, rating 3 is minor strength, and rating 4 is major strength.

Opportunities	Weight	Rating	Weighted Score
Continuous growing demand in the industry	0.05	1	0.05
Growing demand of the online services	0.05	2	0.1
Emergence of mobile software	0.1	1	0.1
Investment in next generation hardware	0.025	3	0.075
Increase in use of 3D television sets	0.03	1	0.03
Large pool of skilled workers world wide	0.05	1	0.05
Emergence of Latin American market	0.05	4	0.2
Introduction of Virtual reality programs and hardware	0.025	2	0.05
Capitalization of Brand beyond the incumbent industry	0.01	4	0.04
Celebrity involvement	0.01	4	0.04

Threats	Weight	Rating	Weighted Score
Digital Piracy	0.2	3	0.6
Intense competition in the market	0.05	4	0.2
Delay in hardware development	0.05	3	0.15
Licensing of intellectual property	0.1	4	0.4
Cyber-attacks on company servers	0.03	3	0.09
Misuse of subscription rights in countries such as China and India	0.05	2	0.1
Environmental activism against CO2 emission caused by mainframes	0.01	1	0.01
Negative critical reviews and online rumors	0.05	4	0.2
Further sales taxation of State	0.04	3	0.12
Increase in presence of regulatory author	0.02	4	0.08
TOTALS	1		2.685

Activision Blizzard

Opportunities	Weight	Rating	Weighted Score
Continuous growing demand in the industry	0.05	4	0.2
Growing demand of the online services	0.05	4	0.2
Emergence of mobile software	0.1	1	0.1
Investment in next generation hardware	0.025	3	0.075
Increase in use of 3D television sets	0.03	2	0.06
Large pool of skilled workers world wide	0.05	3	0.15
Emergence of Latin American market	0.05	1	0.05
Introduction of Virtual reality programs and hardware	0.025	1	0.025
Capitalization of Brand beyond the incumbent industry	0.01	4	0.04
Celebrity involvement	0.01	4	0.04

Threats	Weight	Rating	Weighted Score
Digital Piracy	0.2	2	0.4
Intense competition in the market	0.05	4	0.2
Delay in hardware development	0.05	2	0.1
Licensing of intellectual property	0.1	4	0.4
Cyber-attacks on company servers	0.03	4	0.12
Misuse of subscription rights in countries such as China and India	0.05	3	0.15
Environmental activism against CO2 emission caused by mainframes	0.01	3	0.03
Negative critical reviews and online rumors	0.05	2	0.1
Further sales taxation of State	0.04	3	0.12
Increase in presence of regulatory author	0.02	3	0.06

TOTALS	1		2.62

Appendix V: Internal Factor Evaluation Matrix

Electronic Arts

Strengths	Weight	Rating	Weighted Score
Global presence and immense success of EA's franchise	0.1	4	0.4
Strong financial indicators	0.06	3	0.18
Strong R&D positioning	0.1	4	0.4
Industry leader	0.05	3	0.15
Dominant market position	0.05	2	0.1
Diversification of franchise	0.01	4	0.04
Independent ownership of Music and Visual studios	0.05	4	0.2
Strong legal department	0.05	3	0.15
Availability of other liquid assets (mainly cash)	0.01	1	0.01
Diversity of employee profile	0.02	3	0.06

Weaknesses	Weight	Rating	Weighted Score
Decline in net worth	0.01	1	0.01
Dependency on licensing	0.2	1	0.2
Low employee morale and productivity	0.1	4	0.4
Limited product diversification (software engines)	0.05	1	0.05
Aggressive acquisition rather than intrinsic growth	0.1	4	0.4
Excessive equity	0.04	2	0.08
TOTALS	1		2.83

Activision Blizzard

Strengths	Weight	Rating	Weighted Score
Global presence and immense success of Activision's franchise	0.1	4	0.4
Strong financial indicators	0.06	4	0.24
Strong R&D positioning	0.1	3	0.3
Industry leader	0.05	4	0.2
Dominant market position	0.05	4	0.2
Diversification of franchise	0.01	1	0.01
Independent ownership of Music and Visual studios	0.05	3	0.15
Strong legal department	0.05	3	0.15
Availability of other liquid assets (mainly cash)	0.01	4	0.04
Diversity of employee profile	0.02	2	0.04

Weaknesses	Weight	Rating	Weighted Score
Decline in net worth	0.01	4	0.04
Dependency on licensing	0.2	1	0.2
Low employee morale and productivity	0.1	3	0.3
Limited product diversification (software engines)	0.05	1	0.05
Aggressive acquisition rather than intrinsic growth	0.1	1	0.1
Excessive equity	0.04	3	0.12
TOTALS	1		2.54

Appendix VI: Financial Analysis

Electronic Arts

Figures in Millions of United States Dollars

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenues	3,091	3,665	4,212	3,654	3,589	4,143	3,797	3,575	4,515
CoGS, HW & Third parties	1,212	1,805	2,127	1,866	1,499	1,598	1,388	1,032	1,028
G&A	288	339	332	320	301	377	354	410	386
D&A	27	34	58	53	57	43	52	50	3
Cost, of which	1,527	2,178	2,517	2,239	1,857	2,018	1,794	1,492	1,417
EBIT	1,564	1,487	1,695	1,415	1,732	2,125	2,003	2,083	3,098
EBT	1,564	1,487	1,695	1,415	1,732	2,125	2,003	2,083	3,098
Tax declared	138	507	855	706	279	18	41	1	50
PAT	1,426	980	840	709	1,453	2,107	1,962	2,082	3,048
Net income	1,274	1,891	3,016	2,529	2,007	1,954	1,766	2,073	1,300
"Effective" Tax rate (%)	8.82	34.10	50.44	49.89	16.11	0.85	2.05	0.05	1.61

Profitability ratios

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 07/15
Gross margin	61%	51%	50%	49%	58%	61%	63%	71%	77%	60%
Net Margin	61%	51%	50%	49%	58%	61%	63%	71%	77%	60%
EBITDA Margin	51%	42%	42%	40%	50%	52%	54%	60%	69%	51%
EBIT Margin	51%	41%	40%	39%	48%	51%	53%	58%	69%	50%
PAT% of sales	46%	27%	20%	19%	40%	51%	52%	58%	68%	42%

Cost Structure Analysis

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 07/15
G&A % of sales	9%	9%	8%	9%	8%	9%	9%	11%	9%	9%
Salaries % of sales	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
D&A % of sales	1%	1%	1%	1%	2%	1%	1%	1%	0%	1%
EBIT % of sales - before Ex. Items	51%	41%	40%	39%	48%	51%	53%	58%	69%	50%

Capital Efficiency ratios

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 07/15
Net Profit	1,426	980	840	709	1,453	2,107	1,962	2,082	3,048	
Equity	3,735	6,078	9,372	12,134	14,261	16,079	17,659	19,911	20,985	
ROE	38%	16%	9%	6%	10%	13%	11%	10%	15%	14.28%
ROA	23%	34%	59%	61%	28%	27%	27%	28%	16%	
Tax rate	32.70%									
NOPAT	1,564	1,487	1,695	1,415	1,732	2,125	2,003	2,083	3,098	
Interest Bearing Liabilities (net)	80	99	99	99	134	716	714	183	697	
Invested Capital	3,815	6,177	9,471	12,233	14,395	16,795	18,373	20,094	21,682	
ROIC	41%	24%	18%	12%	12%	13%	11%	10%	14%	17.20%

Liquidity ratios

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cash ratio	0.65	0.59	0.68	0.47	0.48	0.32	0.35	0.49	0.47
Liquid ratio	1.51	1.40	1.40	1.29	1.45	0.84	0.76	1.38	1.25
Current ratio	1.57	1.52	1.57	1.37	1.61	0.87	0.78	1.43	1.27
Quick Ratio	1.59	1.43	1.53	0.94	0.96	0.78	0.71	0.74	0.74

Stability ratios

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 07/15
Equity	3,735	6,078	9,372	12,134	14,261	16,079	17,659	19,911	20,985	
Net Debt (interest-bearing debt minus excess cash)	80	99	99	99	134	716	714	183	697	
EBITDA	1,591	1,521	1,753	1,468	1,789	2,168	2,055	2,133	3,101	
Debt to Equity Ratio	0.021	0.016	0.011	0.008	0.009	0.045	0.040	0.009	0.033	0.0274
Gearing	2%	2%	1%	1%	1%	4%	4%	1%	3%	0.0264
Debt cover Ratio	0.05	0.07	0.06	0.07	0.07	0.33	0.35	0.09	0.22	

Working Capital Analysis

(Indicator "d" is number of days)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 07/15
Receivable from customers and others	256	306	116	206	479	366	72	-25	-35	
Inventories	62	168	217	100	77	59	42	56	36	
Payable to suppliers and others	994	912	875	808	996	1,072	873	900	862	
Working Capital	-676	-438	-542	-502	-440	-647	-759	-869	-861	
% of Turnover	-22%	-12%	-13%	-14%	-12%	-16%	-20%	-24%	-19%	-17%
Receivable days (% Sales)	30.2 d	30.5 d	10.1 d	20.6 d	34.1 d	32.2 d	5.4 d	-1.2 d	-4.4 d	17.5
Days of stock (% Sales)	18.7 d	34.0 d	37.2 d	19.6 d	18.7 d	13.5 d	11.0 d	19.8 d	12.8 d	20.6
Payable days (% Sales)	21.3 d	22.8d	13.2 d	9.1 d	23.2 d	18.9 d	13.1 d	12.1 d	5.5 d	15.5
Payable days (% Opex and CAPEX)	241.9	242.9	204.5	224.9	103.2	178.3	286.6	185.9	184.1	205.8

Cash flows

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EBIT+DA	1,591	1,521	1,753	1,468	1,789	2,168	2,055	2,133	3,101
Working capital	-676	-438	-542	-502	-440	-647	-759	-869	-861
Receivables	256	306	116	206	335	366	72	-25	-35
Stocks & prepayment net of supplier payables	-118	-61	65	9	-7	-156	-94	-63	-32
Payables to others	-814	-683	-723	-717	-768	-857	-737	-781	-794
Change in working capital		238	-104	40	62	-207	-112	-110	8
Receivables		50	-190	90	129	31	-294	-97	-10
Stocks net of supplier payables		57	126	-56	-16	-149	62	31	31
Payables to others		131	-40	6	-51	-89	120	-44	-13
Tax Paid		188	906	732	329	21	25	17	169
Cash flow from operations		1,095	951	696	1,398	2,354	2,142	2,226	2,924
Investment		-294	-419	-482	2,400	606	-369	696	434
Cash flow before financing		1,389	1,370	1,178	-1,002	1,748	2,511	1,530	2,490
Debt financing (increase in)		19	0	0	35	582	-2	-531	514
Cash flow before equity movements		1,408	1,370	1,178	-967	2,330	2,509	999	3,004
Share capital increase		0	0	0	0	-136	-185	179	-226
Dividend paid		-910.6	-2,176	-1,820	-554.4	153.41	196.23	9.2409	1,748
Cash flow after financing		2,319	3,546	2,998	-412.6	2,041	2,128	1,169	1029.84
B/S change in Cash		182	68	-348	306	-286	-1	490	286

Others ratios

	2008	2009	2010	2011	2012	2013	2014	2015
EBIT ->Cash flow (before financing) conversion ratio	0.93	0.81	0.83	-0.58	0.82	1.25	0.73	0.80
5 year average (2010-2015)	0.46							
8 year average (2008-2015)	0.72							
Growth in retained earnings	42%	25%	17%	30%	33%	23%	20%	24%
(Cum. Cash flow) / (Cum. Sales) ratio	38%	35%	34%	19%	24%	31%	33%	36%
Interest Coverage Ratio	497%	2432%	11433%	3120%	206%	576%	127%	4122%
Cash flow to Debt	127%	98%	95%	-58%	103%	82%	45%	108%
Operating Cash Flow	38%	33%	32%	-27%	53%	61%	33%	62%

Activision Blizzard

Figures in Millions of United States Dollars

	2011	2012	2013	2014	2015
Revenues	4,755	4,856	4,583	4,408	4,664
CoGS, HW & Third parties	1,134	1,116	3,201	2,786	2,447
G&A	456	561	490	417	380
Taxes and similar	3	7	53	146	229
D&A	218	194	187	260	412
Cost, of which	1,811	1,878	3,931	3,609	3,468
EBIT after extraordinary items	2,944	2,978	652	799	1,196
Interest costs, net	0	0	53	202	198
EBT	2,944	2,978	599	597	998
Tax declared	246	246	309	146	229
PAT	2,698	2,732	290	451	769
Dividend declared	194	204	216	147	170
Net income	2,504	2,528	74	304	599
"Effective" Tax rate	8.4%	8.3%	51.6%	24.5%	22.9%

Profitability ratios

	2011	2012	2013	2014	2015
Gross margin	76%	77%	30%	37%	48%
Other Variable costs	0	0	1,767	1,734	1,788
Net Gross Margin	76%	77%	-8.4%	-3%	9%
EBITDA Margin	66%	65%	18%	24%	34%
EBIT Margin	62%	61%	14%	18%	26%
PAT% of sales	57%	56%	6%	10%	16%

Cost Structure Analysis

	2011	2012	2013	2014	2015
G&A % of sales	10%	12%	11%	9%	8%
Salaries % of sales	0%	0%	0%	0%	0%
D&A % of sales	5%	4%	4%	6%	9%
Extraordinary item % of sales	0%	0%	0%	0%	0%
EBIT % of sales - before Ex. Items	62%	61%	14%	18%	26%

Capital Efficiency ratios

	2011	2012	2013	2014	2015
Net Profit	2,698	2,732	290	451	769
Equity	12,120	14,482	14,788	15,334	16,251
ROE	22%	19%	2%	3%	5%
ROA	15%	13%	0%	1%	3%
Tax rate					
NOPAT	2,944	2,978	652	799	1,196
Interest Bearing Liabilities (net)	2,785	2,883	7,390	2,714	2,611
Invested Capital	14,905	17,365	22,178	18,048	18,862
ROIC	20%	17%	3%	4%	6%

Liquidity ratios

	2011	2012	2013	2014	2015
Cash ratio	0.55	0.67	0.43	0.76	0.30
Liquid ratio	1.20	1.45	0.64	2.49	1.72
Current ratio	1.25	1.51	0.66	2.56	1.79
Quick Ratio	1.49	1.76	2.05	3.34	2.32

Stability ratios

	2011	2012	2013	2014	2015	Average
Debt to Equity Ratio	0.23	0.20	0.50	0.18	0.16	0.25
Gearing	19%	17%	33%	15%	14%	0.19
Debt cover Ratio	0.9	0.9	8.8	2.6	1.6	

Working Capital Analysis

	2011	2012	2013	2014	2015
Working Capital	403	573	331	3,559	3,577
% of Turnover	8%	12%	7%	81%	77%
Receivable days (% Sales)	50 d	53 d	41 d	55 d	53 d
Days of stock (% Sales)	46 d	68 d	19 d	17 d	18 d
Payable days (% Sales)	30 d	26 d	28 d	27 d	22 d
Payable days (% Opex and CAPEX)	9	45	35	80	82

Cash flows

	2011	2012	2013	2014	2015
Working capital	403	573	331	3,559	3,577
Receivables	*649*	*707*	*515*	*4,220*	*4,240*
Change in working capital	403	170	(242)	3,228	18
Interest Paid	0	0	53	202	198
Tax Paid	246	246	309	136	229
Cashflow from operations	2,513	2,756	719	-2,507	1,163
Investment	13,495	1,117	(1)	890	1,021
Cashflow before financing	-10,982	1,639	720	-3,397	142
Debt financing (increase in)	2,785	98	4,507	(4,676)	(103)
Cashflow before equity movements	(8,197)	1,737	5,227	(8,073)	39
Share capital increase	*9,616*	*(166)*	*232*	*242*	*318*
Dividend paid	*1,148*	*1,112*	*1,024*	*147*	*170*
Cashflow after financing	271	459	4,435	-7,978	187
B/S change in Cash	3,165	794	451	438	-3,025

Others ratios

EBIT-> Cashflow analysis	2011	2012	2013	2014	2015
EBIT ->Cashflow (before financing) conversion ratio	(3.73)	0.55	1.10	(4.25)	0.12
Cumulated Retained earnings incl. Dividends	*2,698*	*5,430*	*5,720*	*6,171*	*6,940*
(Cum. Cashflow) / (Cum. Sales) ratio	-231%	-97%	-61%	-65%	-51%
Interest Coverage Ratio	0	0	2738%	586%	666%
Cashflow to Debt	5%	8%	45%	-147%	4%
Operating Cash Flow	6%	9%	97%	-181%	4%

Appendix VII: Analysis of Stock Returns

Methodology

GARCH Modeling

We begin with Auto Regressive Conditional Heteroscedasticity (ARCH) models developed by Robert Engle (1982) that are non-linear. In practice ARCH models are a good tool for measuring volatility of returns.

To model the volatility, we first tried to fit ARIMA, which is a basic model used for analyzing time series data. However, as the data often appear to be non-stationary, and heteroscedasticity was also found to be present; models from the Autoregressive Conditional Heteroscedastic (ARCH) can also be applied. The most tangible result of ARCH analysis is the apparent changes in volatility; as they may be predicted and resulted from specific type of nonlinear dependencies rather than exogenous structural changes in variables. Despite its all proven efficiency, ARCH models are not without drawbacks. ARCH models typically has long lags in the conditional variance equation, leading to a problem with negative variance parameter estimates, and thus requiring remedy for fixed lag structure. The lag may be too large and thusly "non-negative condition" may not always hold.

Bolerslev (1986) addresses this inefficient by the introduction of Generalized Autoregressive Conditional Heteroscedasticity (GARCH) models, which remedy this problem. Concurrently, the GARCH process is employed by financial experts because it provides more realist context in comparison to other models when predicting the prices and rates of financial instruments. Further extensions such as NGARCH, IGARCH, GARCH-M, QGARCH, EGARCH, TGARCH known as GJR-GARCH and others from the FGARCH group include leverage terms for modeling asymmetric volatility clustering.

Unlike conventional econometric models for analyzing time series data, which operate under the assumption of constant variance, the ARCH process allows the conditional variance to change over time as a function of past errors, thus leaving the unconditional variance constant. The general form of ARCH models is as follows:

$$y_t = \sum_{i=1}^{m} \rho_{1i} y_{t-i} + \sum_{i=1}^{n} \rho_{2i} y_{t-i} + u_t \ (1)$$

Where $u_t = z_t\sqrt{h_t}\,, z_t \sim IID\ (0,1)$

$$h_t = w + \sum_{i=1}^{q} a_i u_{t-i}^2 + \sum_{i=1}^{p} \beta_i h_{t-i} \quad (2)$$

Where equation (1) is a mean equation for returns on y_t which potentially follow AR or MA processes. The error term "u_t" is a function of stochastic term "z_t" (white noise) and time-varying variance"h_t". Equation (2) characterizes conditional variance (volatility) which gives weight to unconditional variance (w), pervious forecast (h_{t-i}), and the news or innovations measured as the squares of previous period's return(u_{t-i}^2).

Depending on the predictions, other exogenous variables and dummies can be introduced to the mean and variance equations for measurement of asymmetric effects. These effects can affect future returns and volatility.

The first model to be tested shall be GARCH, defined and implemented by Bollerslev (1986). GARCH (1, 1) illustrates volatility process as follows:

$$h_t = w + \alpha u_{t-1}^2 + \beta h_{t-1} \qquad (3)$$

The most important characteristics of this process is its mean reversion (imposed by the restriction "$\alpha + \beta < 1$") and its symmetry (equal weights given to both negative and positive returns, which may be interpreted as bad and good news). In addition the Author will employ models that control for asymmetric news effect. GJR-ARCH developed by Glosten et al. in 1993 represents volatility process as:

$$h_t = w + \alpha u_{t-1}^2 + \gamma I_{t-1} u_{t-1}^2 + \beta h_{t-1} \ (4)$$

For $u_t < 0,\ I_t = 1$ and zero otherwise. Thusly, bad news has given greater weight in comparison to good news.

Another model which will be used is Threshold GARCH (TGARCH), developed by Zakoian in 1994, this model is quite similar to GJR-GARCH. The specification is on conditional standard deviation instead of conditional variance (σ_t).

$$\sigma_t = w + \alpha_1 u_{t-1}^{+} + \alpha_2 u_{t-1}^{-} + \beta h_{t-1} \quad (5)$$

Where $u_{t-1}^{+} = u_{t-1}$, for positive returns and zero otherwise. In contrast for negative or zero returns$u_{t-1}^{-} = u_{t-1}$, and zero otherwise.

VAR Model

Vector Auto regression (VAR) is natural generalization of autoregressive models in multivariate setting. It includes a system of equation with dependent variables regressed lags of each other. VAR models provide qualitative analysis of relationship between variables which is suitable for forecasting the mean and analysis of impulse, response function and variance decomposition.

VAR models are used to capture the linear interdependencies among multiple time series. VAR models generalize the univariate autoregressive model (AR model) by allowing for more than one evolving variable. All variables in a VAR are treated symmetrically in a structural sense; each variable has an equation explaining its evolution based on its own lags and the lags of the other model variables.

The general form of VAR $_{(p)}$ is:

$$x_t = \mu + \sum_{i=1}^{p} \Pi_i x_{t-i+} \varepsilon_t$$

VAR models are data driven models. In this section we show a bivariate VAR of first order that is going to be used in our analysis.

$$y_t = a_{10} + a_{11} y_{1,t-1} + a_{12} z_{1,t-1} + \varepsilon_{1t}$$

$$z_t = a_{20} + a_{21} y_{1,t-1} + a_{22} z_{1,t-1} + \varepsilon_{2t}$$

As we can see from the equations above, VAR models require models with endogenous variables in their construct as the first variable (y) has an impact on the second variable (z).

Analysis

ARIMA Modeling

Our data set consists of 6560 observations of historical prices of EA. The first observation in the data is dated 1990. We can see the effects two distinct crises, the 2000 IT bubble and 2007 subprime crisis.

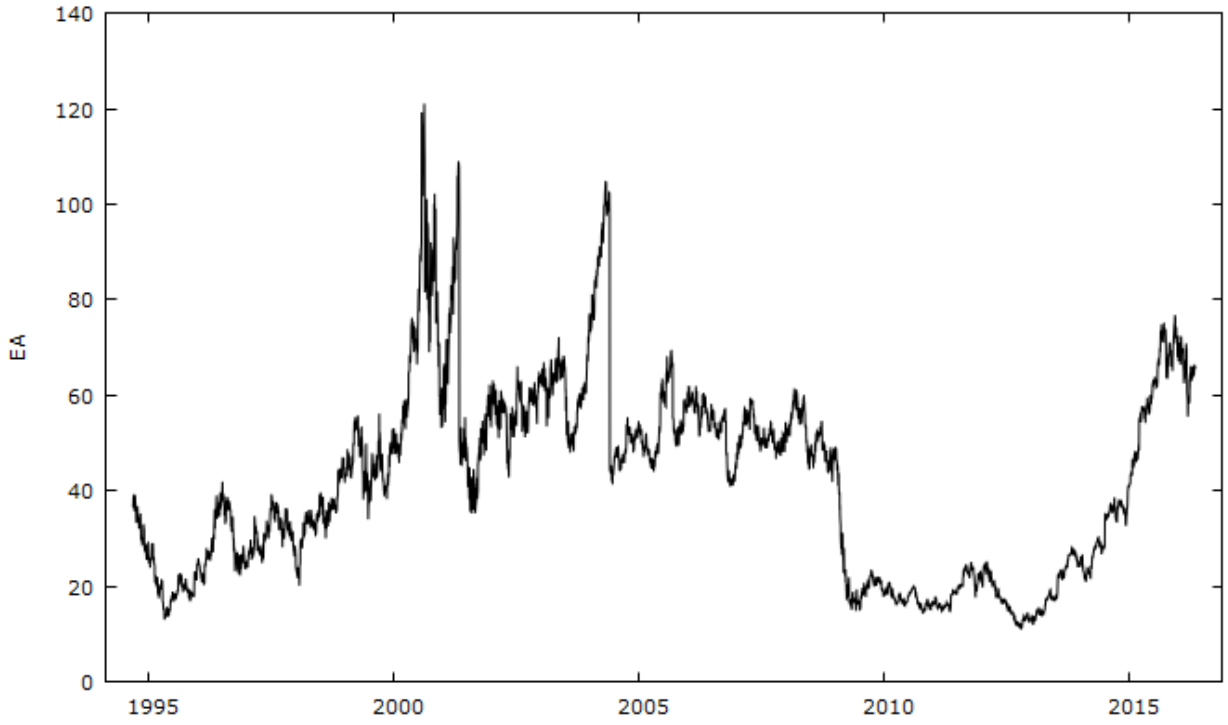
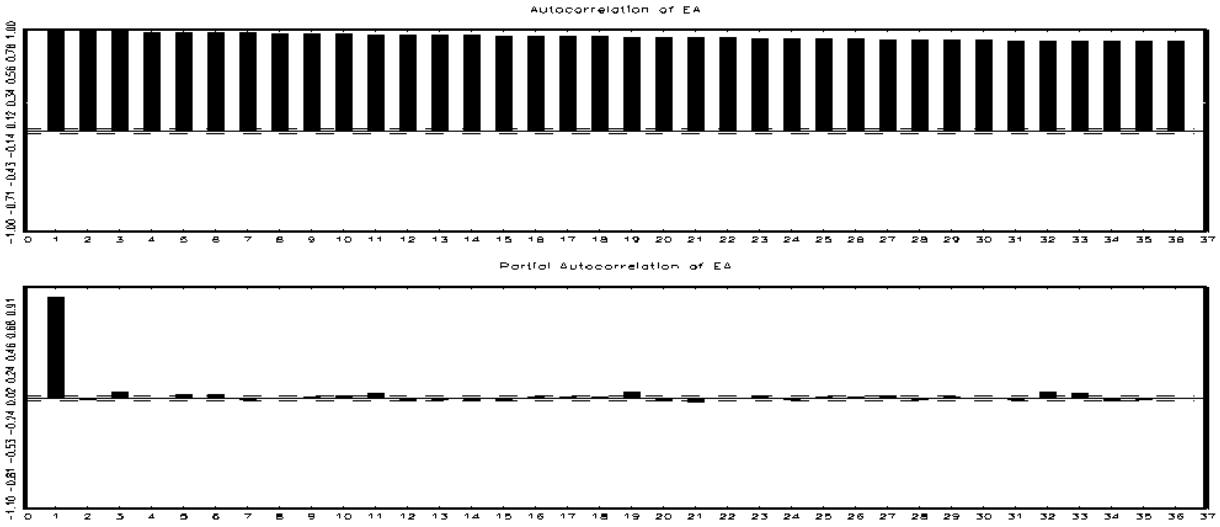


Figure 21: Historical stock prices of EA

The effect of both of these crises is transparent on the data. Based on our observation we suspect that this dataset is not stationary. After confirming our suspicion with Augmented Dickey-Fuller test and furthermore with KPSS test.

Judging by the visual inspection of the data this dataset is non-stationary.



Autocorrelation function for EA

***, **, * indicate significance at the 1%, 5%, 10% levels

Using standard error 1/T^0.5

LAG	ACF	PACF	Q-stat. [p-value]
1	0.9959 ***	0.9959 ***	5609.0607 [0.000]
2	0.9918 ***	-0.0046	11173.1197 [0.000]
3	0.9881 ***	0.0424 ***	16696.3870 [0.000]
4	0.9844 ***	-0.0031	22178.9193 [0.000]
5	0.9809 ***	0.0380 ***	27624.2749 [0.000]
6	0.9778 ***	0.0333 **	33035.7409 [0.000]
7	0.9745 ***	-0.0177	38411.6818 [0.000]
8	0.9711 ***	-0.0048	43751.6445 [0.000]
9	0.9679 ***	0.0062	49056.4538 [0.000]
10	0.9647 ***	0.0206	54327.9858 [0.000]
11	0.9621 ***	0.0575 ***	59571.5019 [0.000]
12	0.9592 ***	-0.0257 *	64784.9351 [0.000]

13	0.9562 ***	-0.0163	69966.5462 [0.000]
14	0.9530 ***	-0.0235 *	75114.4984 [0.000]
15	0.9495 ***	-0.0348 ***	80225.6559 [0.000]
16	0.9461 ***	0.0127	85301.4100 [0.000]
17	0.9430 ***	0.0175	90344.2498 [0.000]
18	0.9399 ***	0.0113	95355.4705 [0.000]
19	0.9374 ***	0.0563 ***	100340.0998 [0.000]
20	0.9345 ***	-0.0307 **	105295.5233 [0.000]
21	0.9313 ***	-0.0425 ***	110217.3899 [0.000]
22	0.9281 ***	0.0042	115106.6588 [0.000]
23	0.9251 ***	0.0169	119965.2359 [0.000]
24	0.9220 ***	-0.0176	124791.8844 [0.000]
25	0.9191 ***	0.0176	129588.8977 [0.000]
26	0.9162 ***	0.0038	134356.6954 [0.000]
27	0.9133 ***	0.0161	139095.9040 [0.000]
28	0.9103 ***	-0.0207	143804.7255 [0.000]
29	0.9074 ***	0.0181	148484.5288 [0.000]
30	0.9047 ***	0.0128	153137.3826 [0.000]
31	0.9020 ***	-0.0160	157762.5627 [0.000]
32	0.8997 ***	0.0594 ***	162364.8770 [0.000]
33	0.8977 ***	0.0479 ***	166948.3827 [0.000]
34	0.8955 ***	-0.0276 **	171510.0079 [0.000]
35	0.8931 ***	-0.0134	176047.8321 [0.000]
36	0.8907 ***	-0.0014	180562.1469 [0.000]
37	0.8882 ***	-0.0143	185051.4934 [0.000]

To confirm this result we provide the result of Augmented Dickey-Fuller test

Augmented Dickey-Fuller test for EA

Including 32 lags of (1-L) EA
(Max was 32, criterion AIC)
Sample size 5619
Unit-root null hypothesis: a = 1

Test with constant
Model: (1-L) y = b0 + (a-1)*y (-1) + ... + e
Estimated value of (a - 1): -0.00292405
Test statistic: tau_c (1) = -2.43319
Asymptotic p-value 0.1326
1st-order autocorrelation coeff. For e: 0.001
Lagged differences: F (32, 5585) = 4.741 [0.0000]

With constant and trend
Model: (1-L) y = b0 + b1*t + (a-1)*y (-1) + ... + e
Estimated value of (a - 1): -0.00293035
Test statistic: tau_ct (1) = -2.42054
Asymptotic p-value 0.3687
1st-order autocorrelation coeff. For e: 0.001
Lagged differences: F (32, 5584) = 4.739 [0.0000]

As is evident by the results we do not reject the Null hypothesis of unit root and proceed to further confirm the results with KPSS test.

KPSS test for EA (including seasonals)

T = 5652
Lag truncation parameter = 10
Test statistic = 6.85899

	10%	5%	1%
Critical values:	0.347	0.462	0.744

P-value < .01

Testing the null hypothesis of stationary, we strongly reject the null hypothesis and proceed to take the log difference of the data set.

In order to solve the problem, the Author took the log-first difference and the results are now stationary. After taking the log, first different of our data set we can see a clear stationary data with extreme volatility during the crisis years.

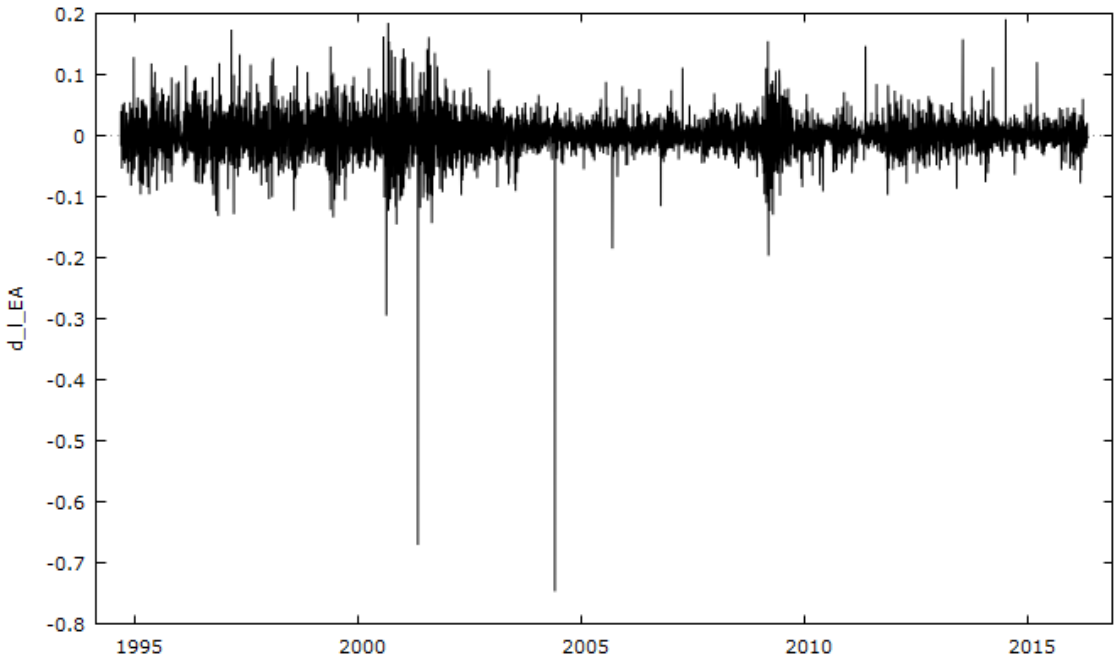


Figure 22: Log, first difference of dataset.

The log-differenced time series is shown in the plot in Figure 2 above. While the mean now seems constant, the residuals seem Heteroscedastic, and not normally distributed.

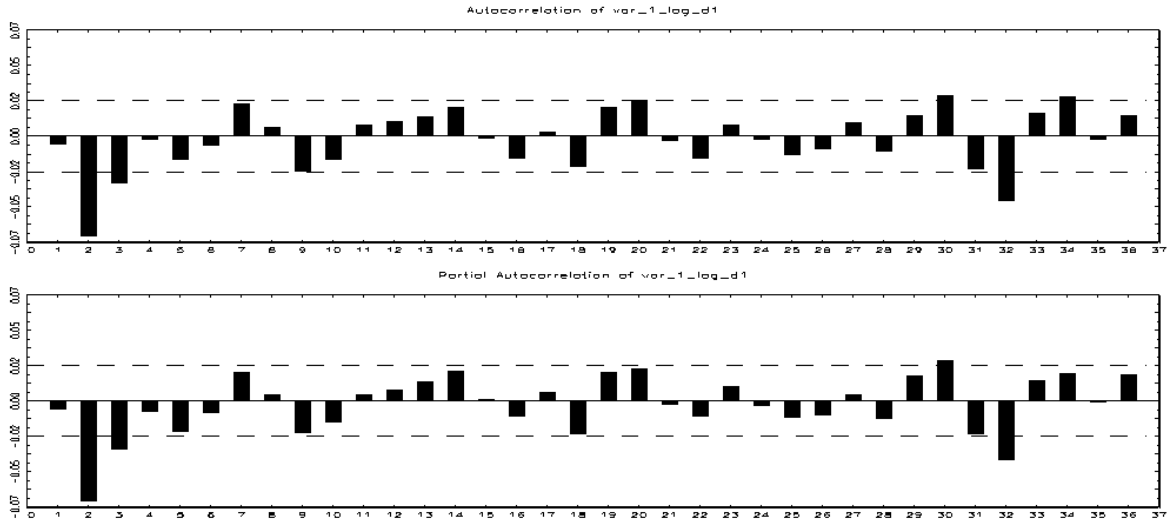


Figure 23: ACF and PACF correlogram for log-differenced dataset.

We can observe significance of the second lag and some significance of the third. In addition the visual inspection yields significance of the 32nd lag. However we will ignore this dependency to

avoid the unnecessary sophistication of our model. We confirm our visual inspection by information criterion.

The next step is ARIMA modeling of our data. The optimal number of lags required is not clearly determined. The Akaike and Hannan-Quinn criterions suggested three lags and Schwarz criterion suggested two lags. Despite the suggestion of AR (2) and MA (3) process in the data, ARIMA (2, 0, 2) was the only model that provided the minimum information criterion. Moreover all autoregressive terms and moving average terms are significant, the Q statistics of Ljung-Box test confirms our results. Thus the Author has used ARIMA (2, 0, and 2) for further analysis below.

Model 3: ARMA, using observations 1993-11-26:2015-07-24 (T = 5651)
Dependent variable: ld_EA
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
Const	9.8928e-05	0.000438768	0.2255	0.8216	
Phi_1	0.928998	0.0465502	19.9569	<0.0001	***
Phi_2	−0.894876	0.0984674	−9.0880	<0.0001	***
Theta_1	−0.948342	0.0444932	−21.3143	<0.0001	***
Theta_2	0.894574	0.0952984	9.3871	<0.0001	***

Mean dependent var	0.000100	S.D. dependent var	0.033714
Mean of innovations	7.44e-07	S.D. of innovations	0.033668
Log-likelihood	11145.19	Akaike criterion	−22278.39
Schwarz criterion	−22238.55	Hannan-Quinn	−22264.51

		Real	*Imaginary*	*Modulus*	*Frequency*
AR					
	Root 1	0.5191	-0.9209	1.0571	-0.1683
	Root 2	0.5191	0.9209	1.0571	0.1683
MA					
	Root 1	0.5301	-0.9148	1.0573	-0.1664
	Root 2	0.5301	0.9148	1.0573	0.1664

Ljung-Box Q' = 25.7406,

With p-value = P (Chi-square (1) > 25.7406) = 3.905e-007

The Author suspected the presence of conditional heteroscedasticity. Our suspicion was confirmed by ARCH-LM test. It fails to reject null hypothesis of no dependencies (p-value close to 0.9). Results of the test are presented here. Concluding that there are further decencies in our residuals. We save the residuals and proceed to GARCH modeling.

ARCH-LM test results

	Coefficient	std. error	t-ratio	p-value
Alpha (0)	0.00109664	0.000134992	8.124	5.51e-016 ***
Alpha (1)	0.0122191	0.0133152	0.9177	0.3588
Alpha (2)	0.00363046	0.0133159	0.2726	0.7851
Alpha (3)	0.00340330	0.0133160	0.2556	0.7983
Alpha (4)	0.00653649	0.0133160	0.4909	0.6235
Alpha (5)	0.00729274	0.0133153	0.5477	0.5839

Null hypothesis: no ARCH effect is present
Test statistic: LM = 1.55698
With p-value = P (Chi-square (5) > 1.55698) = 0.906402

GARCH Family Fitting

	Coefficient	**Std. Error**	**z**	**p-value**	
alpha(0)	0.000149491	1.53096e-05	9.7645	<0.0001	***
alpha(1)	0.360439	0.0268694	13.4145	<0.0001	***
beta(1)	0.603532	0.0245769	24.5569	<0.0001	***

Mean dependent var	0.000100	S.D. dependent var	0.033714
Log-likelihood	11580.64	Akaike criterion	−23153.29
Schwarz criterion	−23126.73	Hannan-Quinn	−23144.04

Figure 24: GARCH Analysis

TARCH model

coefficient		std. error	Z	P-value
omega	0.000159913	0.000108593	1.473	0.1409
alpha	0.279484	0.122927	2.274	0.0230
gamma	0.493451	0.0708118	6.968	$3.20e^{-012}$
beta	0.663485	0.166414	3.987	6.69e-05

Log likelihood: 11712.21405 AIC: -23414.42810
BIC: -23381.23016 HQC: -23402.86455

TARCH (1, 1)

GJR Model

Model: GJR (1, 1) [Glosten et al.] (Normal)*
Dependent variable: ld_EA
Sample: 1994-09-07-2016-07-24 (T = 5651), VCV method: Robust

Conditional mean equation

Coefficient	std. error	z	p-value	
Const	0.000508366	0.000402921	1.262	0.2071	

Conditional variance equation

Coefficient	std. error	z	p-value	
Omega	0.000125576	8.31185e-05	1.511	0.1308	
Alpha	0.286780	0.174180	1.646	0.0997	*
Gamma	0.430979	0.0712428	6.049	1.45e-09	***
Beta	0.643624	0.172846	3.724	0.0002	***

(Alt. parameterization)

Coefficient	std. error	z	p-value	
Delta	0.000125576	8.31185e-05	1.511	0.1308	
Alpha	0.0928551	0.0477410	1.945	0.0518	*
Gamma	0.494384	0.351892	1.405	0.1600	
Beta	0.643624	0.172846	3.724	0.0002	***

Llik: 11701.03094 AIC: -23392.06187
BIC: -23358.86393 HQC: -23380.49832

VAR Model Analysis

Vector Auto regression (VAR) is a data driven model and the historical value of each variable plays a role in its future determinant. After performing a sensitivity analysis on full sample and a restrictive sample, the Author decided to use restricted sample range; excluding the crisis years of IT bubble in 2000s, Subprime crisis of 2007, and economic recession of 2009. The new dataset begin on 07.01.2011 and the last observation is dated 4.5.2016. The Author decided not to take the first difference of dataset to avoid the loss of long term trend between the two variables. The result of the inverse roots shown distinct signs of stationary.

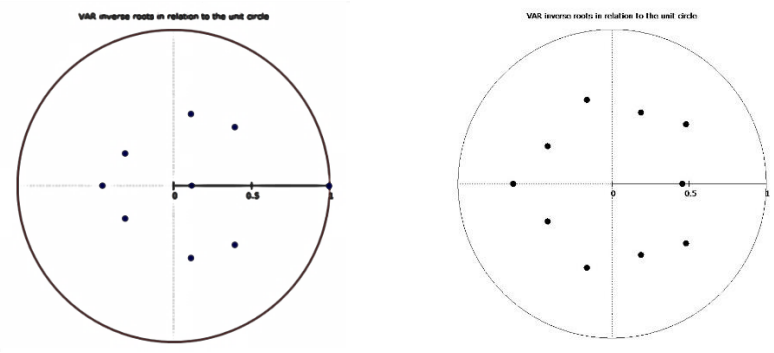


Figure 25: Inverse roots of VAR model

Figure 26 contains the inverse roots of VAR model before log differencing (left) and after log differencing (right). Our restricted sample range lacks the rich volume as it contains 1389 observations.

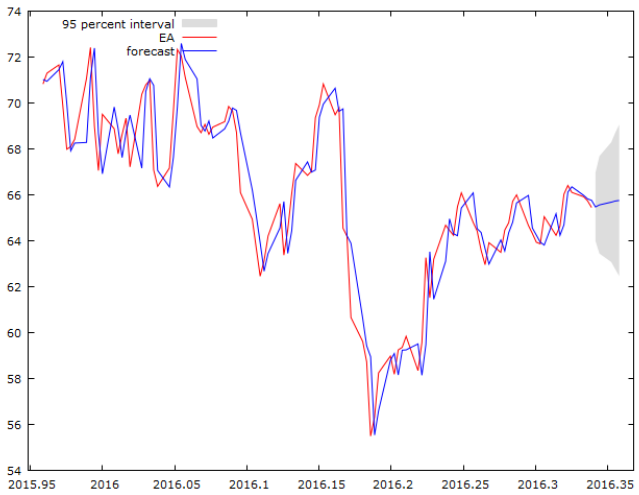


Figure 26: Forecasted stock prices using VAR

The blue line represents the fitted values and the red line is the actual value. We can observe clear trend within 5% level confidence interval. The result of our prediction confirms the figure above.

Another widely used feature of VAR models is the impulse response functions which are used by the Author to determine the volatility of the company in response to shocks.

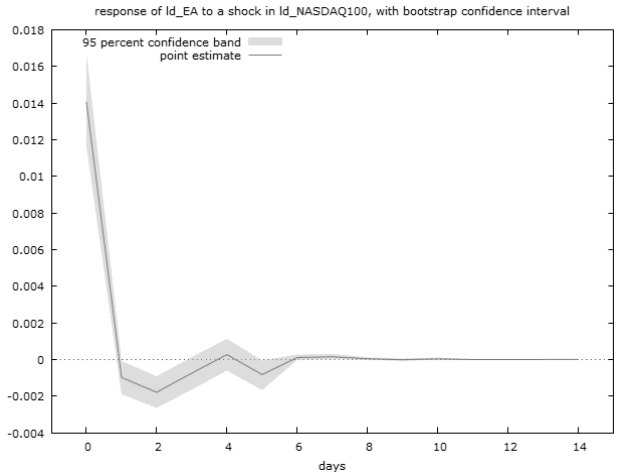


Figure 27: Impulse response function (numbers are in percentage points).

Conclusion

In conclusion, we determined that the model that fits our data best is GARCH (1, 1). All three information criteria were the lowest and the estimates were significant. When conducting our analysis of the asymmetry effect, our estimate (gamma) was positive and significant.

We used the VAR model to forecast the mean of our data. We assessed the response of the company stock performance is high. It occurs within the first day and smooth out by the end of sixth day, assuming the shock to the NASDAQ 100 is not persistent. We determine the volatility of stock returns for Electronic Arts. After fitting the ARIMA modeling, we start ARCH analysis and several models of GARCH family. We find the leverage effect is present in the data. Then we assess the mean forecast using VAR model and response of the company to an external shock. The shock to NASDAQ index can significantly hurt market capitalization. Assuming a non-persistent shock market, the response of company stock imitates a small persistent shock.

Appendix VIII: EA Balance Sheet Forecast

Figures in millions of United States Dollars

	2008 Forecast	2009 Forecast	2008 Actual	2009 Actual
Assets				
Current assets				
Cash and cash equivalents	$ 1,439	$ 1,511	$ 1,553	$ 1,621
Short-term investments	$ 1,327	$ 1,393	$ 734	$ 534
Marketable equity securities.	$ 358	$ 376	$ 729	$ 365
Receivables,	$ 269	$ 282	$ 306	$ 116
Inventories	$ 65	$ 68	$ 168	$ 217
Deferred income taxes	$ 88	$ 93	$ 145	$ 51
Other current assets	$ 230	$ 241	$ 290	$ 216
Total current assets	$ 3,776	$ 3,964	$ 3,925	$ 3,120
Property	$ 508	$ 533	$ 396	$ 354
Acquisition-related intangibles	$ -	$ -	$ -	$ 221
Investments in affiliates	$ 6	$ 7	$ -	$ -
Goodwill	$ 771	$ 809	$ 1,152	$ 807
Other intangibles	$ 220	$ 231	$ 265	$ -
Deferred income taxes	$ 26	$ 28	$ 164	$ 61
Other assets	$ 94	$ 99	$ 157	$ 115
TOTAL ASSETS	$ 5,402	$ 5,672	$ 6,059	$ 4,678
Current liabilities				
Accounts payable	$ 188.97	$ 198.39	$ 229	$ 152
Accrued and other current liabilities	$ 864.01	$ 907.07	$ 683	$ 723
Deferred net revenue	$ 24.15	$ 25.35	$ 387	$ 261
Total current liabilities	$ 1,077	$ 1,131	$ 1,299	$ 1,136
minority interest	$ -	$ -		$ -
Income tax obligations	$ -	$ -	$ 319	$ 268
Deferred income taxes	$ 8	$ 9	$ 5	$ 42
Other liabilities	$ 84	$ 88	$ 97	$ 98
Total liabilities	$ 1,169	$ 1,228	$ 1,720	$ 1,544
Common stock	$ 3	$ 3	$ 3	$ 3
Paid-in capital	$ 1,482	$ 1,556	$ 1,864	$ 2,142
Retained earnings	$ 2,439	$ 2,560	$ 1,888	$ 800
Accumulated other income	$ 309	$ 324	$ 584	$ 189
Total stockholders' equity	$ 4,233	$ 4,444	$ 4,339	$ 3,134

TOTAL LIABILITIES & EQUITY	$ 5,402	$ 5,672	$ 6,059	$ 4,678

Appendix IIX: EA Income Statement Forecast

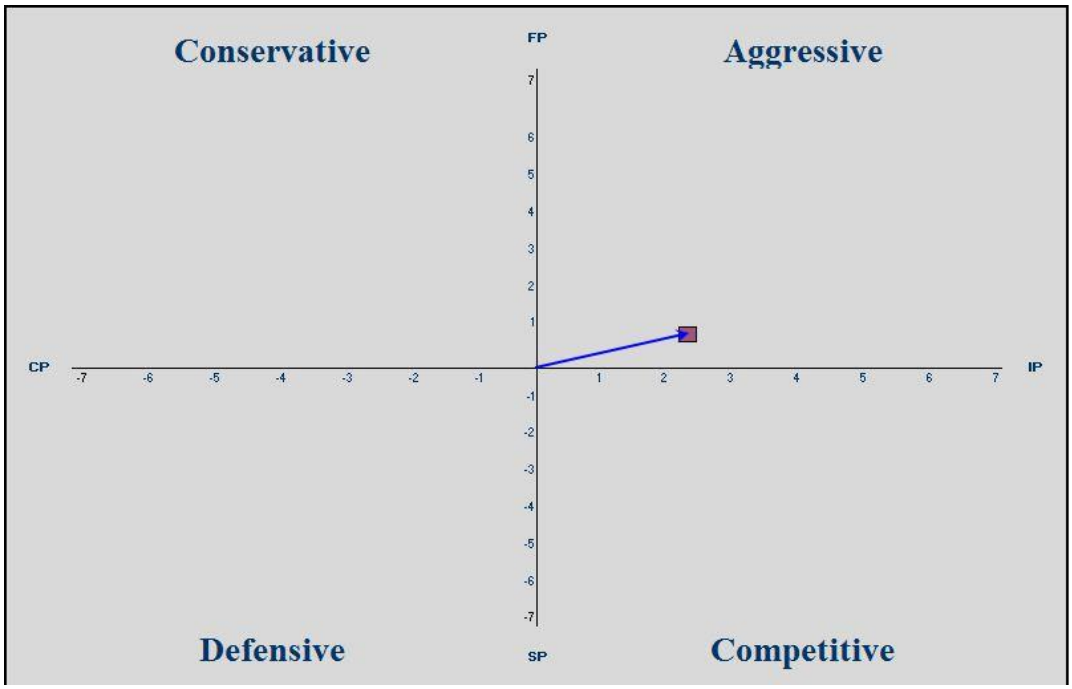
Figures in millions of United States Dollars

	2008	2009	2008	2009
	Forecast		Actual	
Net revenue	$ 3,245	$ 3,407	$ 3,665	$ 4,212
Cost of goods sold	$ 1,272	$ 1,336	$ 1,805	$ 2,127
Gross profit	$ 1,973	$ 2,071	$ 1,860	$ 2,085
Operating expenses:				
Marketing and sales	$ 489	$ 514	$ 588	$ 691
General and administrative	$ 302	$ 317	$ 339	$ 332
Research and development	$ 1,093	$ 1,147	$ 1,145	$ 1,359
Amortization of intangibles	$ 28	$ 30	$ 34	$ 80
Acquired in-process technology	$ 3	$ 3	$ 34	$ 58
Restructuring charges	$ 16	$ 17	$ 103	$ -
Total operating expenses	$ 1,932	$ 2,028	$ 2,243	$ 2,520
Operating income	$ 41	$ 43	$ (487)	$ (827)
Interest and other income	$ 104	$ 109	$ 98	$ 34
Losses on strategic investments			$ (118)	$ (62)
Income before provision for income taxes	$ 145	$ 152	$ (507)	$ (855)
Provision for income taxes	$ 69	$ 73	$ (53)	$ 233
Income before minority interest	$ 76	$ 79	$ -	$ -
Minority interest	$ 4	$ 4	$ -	$ -
Net income	$ 80	$ 84	$ (454)	$ (1,088)

Appendix IX: Space Matrix

Internal Analysis:		*External Analysis:*	
Financial Position (FP)		**Stability Position (SP)**	
Return on Investment (ROI)	5	Rate of Inflation	-2
Leverage	4	Technological Changes	-4
Liquidity	7	Price Elasticity of Demand	-4
Working Capital	5	Competitive Pressure	-4
Cash Flow	6	Barriers to Entry into Market	-7
Financial Position (FP) Average	**5.4**	**Stability Position (SP) Average**	**-4.2**

Internal Analysis:		*External Analysis:*	
Competitive Position (CP)		**Industry Position (IP)**	
Market Share	-3	Growth Potential	2
Product Quality	-1	Financial Stability	7
Customer Loyalty	-5	Ease of Entry into Market	7
Technological know-how	-1	Resource Utilization	6
Control over Suppliers and Distributors	-7	Profit Potential	7
Competitive Position (CP) Average	**-3.4**	**Industry Position (IP) Average**	**5.8**



Appendix X: List of EA's acquisitions

Date	Acquired	Amount
Sep 27, 2012	ESN Social Software	Unknown
Dec 1, 2011	KlickNation	Unknown
Jul 12, 2011	Popcap Games	$1.3B in Cash & Stock
May 3, 2011	Firemint	Unknown
Oct, 2010	Chillingo	$20M in Cash
Nov 9, 2009	Playfish	$400M in Cash & Stock
Jun 19, 2009	J2Play	Unknown
Dec 2, 2008	J2MSoft	Unknown
Jun 3, 2008	ThreeSF	$15M (terms undisclosed)
May 23, 2008	Hands-On Mobile	Unknown
May 8, 2008	Rupture	$15M in Cash
Oct 11, 2007	VG Holding	$860M (terms undisclosed)
Oct 5, 2007	Super Computer International	Unknown
Feb 12, 2007	SingShot Media	Unknown
Nov 30, 2006	Headgate Studios	Unknown
Oct 2, 2006	Digital Illusions	Unknown
Aug 23, 2006	Phenomic Game Development	Unknown
Jun 20, 2006	Mythic Entertainment	Unknown
Dec 8, 2005	JAMDAT Mobile	$680M in Cash
Jul 27, 2005	Hypnotix	Unknown
Jul 28, 2004	Criterion Software Group	Unknown
Feb 13, 2004	NuFX	Unknown
Oct 16, 2003	Studio 33	Unknown
Jun 11, 2002	Black Box Games	Unknown

Feb 28, 2001	Pogo.com	Unknown
Feb 24, 2000	DreamWorks Interactive	Unknown
Nov 22, 1999	Kesmai	Unknown
Sep 8, 1999	PlayNation	Unknown
Sep 8, 1998	Westwood Studios	$122.5M (terms undisclosed)
Jul 28, 1998	ABC Software	Unknown
Apr 2, 1998	Tiburon Entertainment	Unknown
Jul 28, 1997	Maxis	$125M in Stock
Apr 8, 1996	Vision Software PTY	Unknown
Jan 29, 1996	Manley & Associates	Unknown
Jan 6, 1995	Bullfrog Productions	Unknown
Nov 14, 1994	DROsoft	Unknown
Sep, 1992	Origin Systems	$35M in Stock
Aug 1, 1991	Distinctive Software	Unknown

Source: (Crunchbase database, 2016)

Appendix XI: List of Activision's acquisitions

Date	Acquired	Amount
Jan 4, 2016	Major League Gaming	$46M in Cash
Nov 2, 2015	King.com	$5.9B (terms undisclosed)
Apr 6, 2009	California 7 Studios	Unknown
Nov 10, 2008	Budcat Creations	Unknown
Mar 6, 2007	DemonWare	Unknown
May 9, 2006	RedOctane	Unknown
Jan 5, 2006	High Moon Studios	Unknown
May 25, 2005	Beenox	Unknown
May 22, 2002	Z-Axis Ltd.	Unknown
Apr 2, 2002	Shaba Games	$7.4M in Stock
Jan 1, 2002	Gray Matter Interactive Studios	Unknown
Oct 3, 2001	Treyarch	$20M in Stock

(CrunchBase data base, 2016)